THE ARCHITECT & BUILDING NEWS

3 FEBRUARY 1955 · VOL. 207 · NO. 5 · ONE SHILLING WEEKLY

- **RENFREW AIRPORT**
- **COTTAGE AT BRAMSHOTT**
- **TAPS**

PUBLISHED IN LONDON SINCE 1854

WHERE SIMPLE OR COMPLICATED SCHEMES OF VENTILATION ARE INSTALLED, AND THE OPERATION IS REQUIRED BY REMOTE CONTROL OR OTHERWISE, AND THE WINDOWS HAVE ANY OF THE FOLLOWING CHARACTERISTICS:—

- OPENING OUTWARDS
- OPENING INWARDS
- TOP HUNG
- HORIZONTAL CENTRE HUNG
- BOTTOM HUNG
- VERTICAL PIVOT HUNG
- SIDE HUNG
- HORIZONTAL SLIDING
- VERTICAL SLIDING

The illustration shows One set of Electrically operated Twin Tension Rod Gear with Counter-Balance Unit operating one continuous opening light, 74' 0" long x 5' 0" deep. Note the Spiral Balance Wheel fitted at the end Sprocket.

Always Specify WINDOW OPENING GEAR *for*

SKYLIGHTS, LANTERN LIGHTS, CLERESTORY LIGHTS, FANLIGHTS, SIDE WALL LIGHTS IN WOOD OR METAL WINDOWS, OR IN PATENT GLAZING, ROOF LIGHTS AND BENCH LIGHTS IN GREENHOUSES, DAMPERS, TRAP DOORS, SHIPS SKYLIGHTS, ETC.

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by WILLIAM NEWMAN & SONS LTD.

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GEARING DEPT. BRANCH WORKS 3, WELLHEAD LANE, PERRY BARR, BIRMINGHAM

Arthur Brooks has green fingers Time was when Mr. Brooks*—a structural engineer—won first prize for roses at a Surrey Horticultural Show And when all six foot two inches of Mr. Brooks won a table tennis championship for the Divisional Police And when he became a golfer with a handicap of 8. Time was, in short, when Mr. Brooks had time! But as Williams & Williams Divisional Manager with an overriding responsibility for Greater London, the West of England and South Wales, and as a Director of Williams & Williams (South Western) Ltd., he has time only for the odd job in the garden now You'll find him digging into metal window problems, nipping trouble in the bud, cutting corners and smoothing paths of architects. He does it all so pleasantly too!

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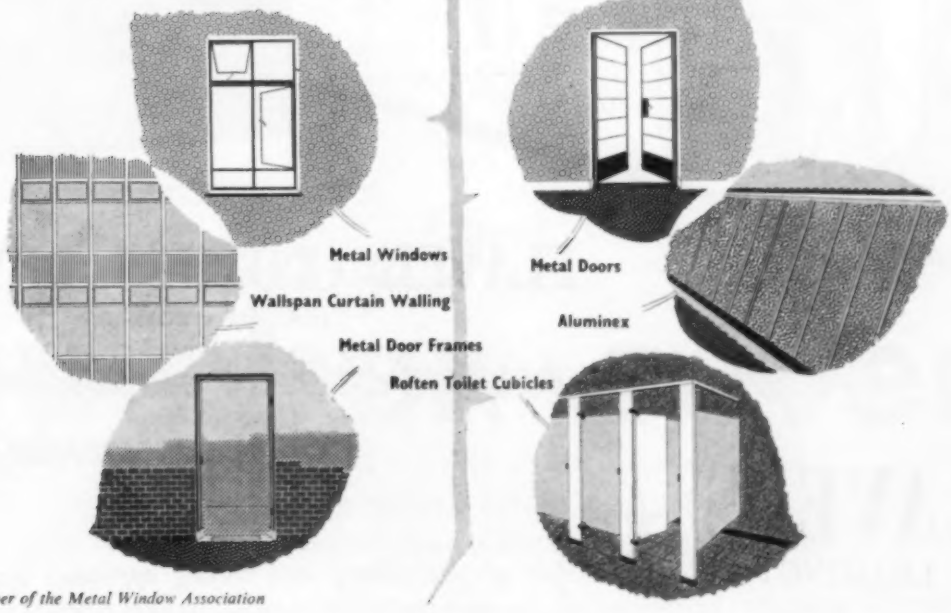
METAL WINDOWS **WILLIAMS & WILLIAMS**



Member of the Metal Window Association

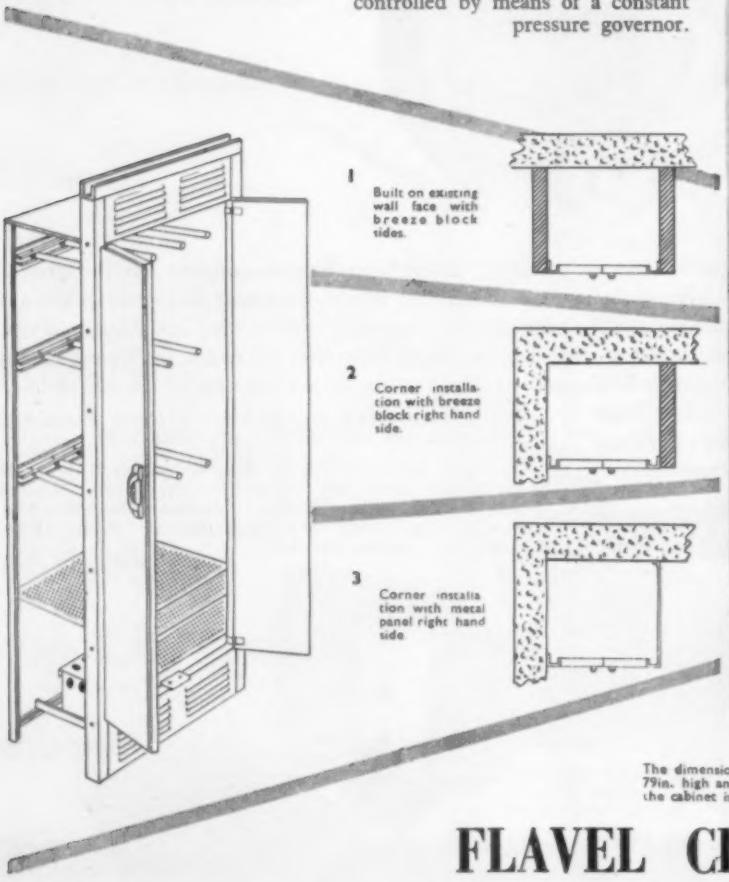
Built-in..

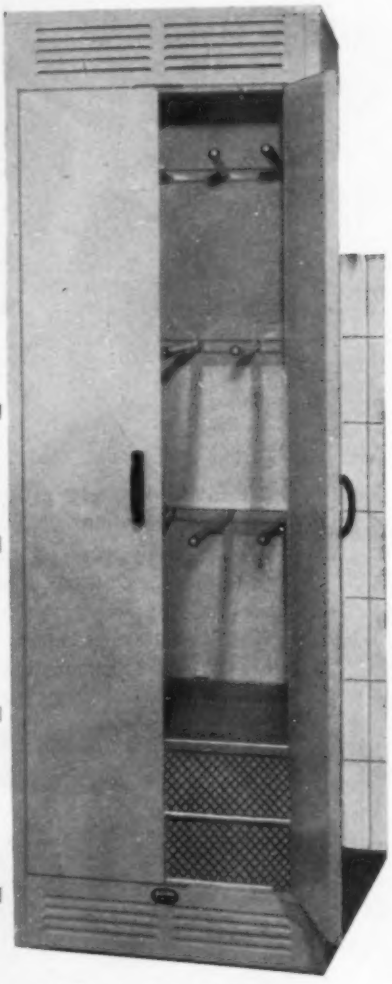
or free standing

The Flavel Clothes Dryer is constructed in order that this may be supplied as a complete unit, or alternatively for building into a recess or corner, by utilizing the main frame assembly and component parts.

The cabinet is strongly constructed of Zintec sheet steel and is finished in cream stove-enamelled paint, fitted with double doors and heated by means of a gas burner unit in the base.

The dryer is large enough to contain an average weekly wash hanging on eleven tubular Bakelite rails at three different heights. A guard is provided above the burner unit and the gas rate controlled by means of a constant pressure governor.





The dimensions of the Free Standing model are 79in. high and 24in. deep, and the width inside the cabinet is 23¾in.

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(GAS HEATED)

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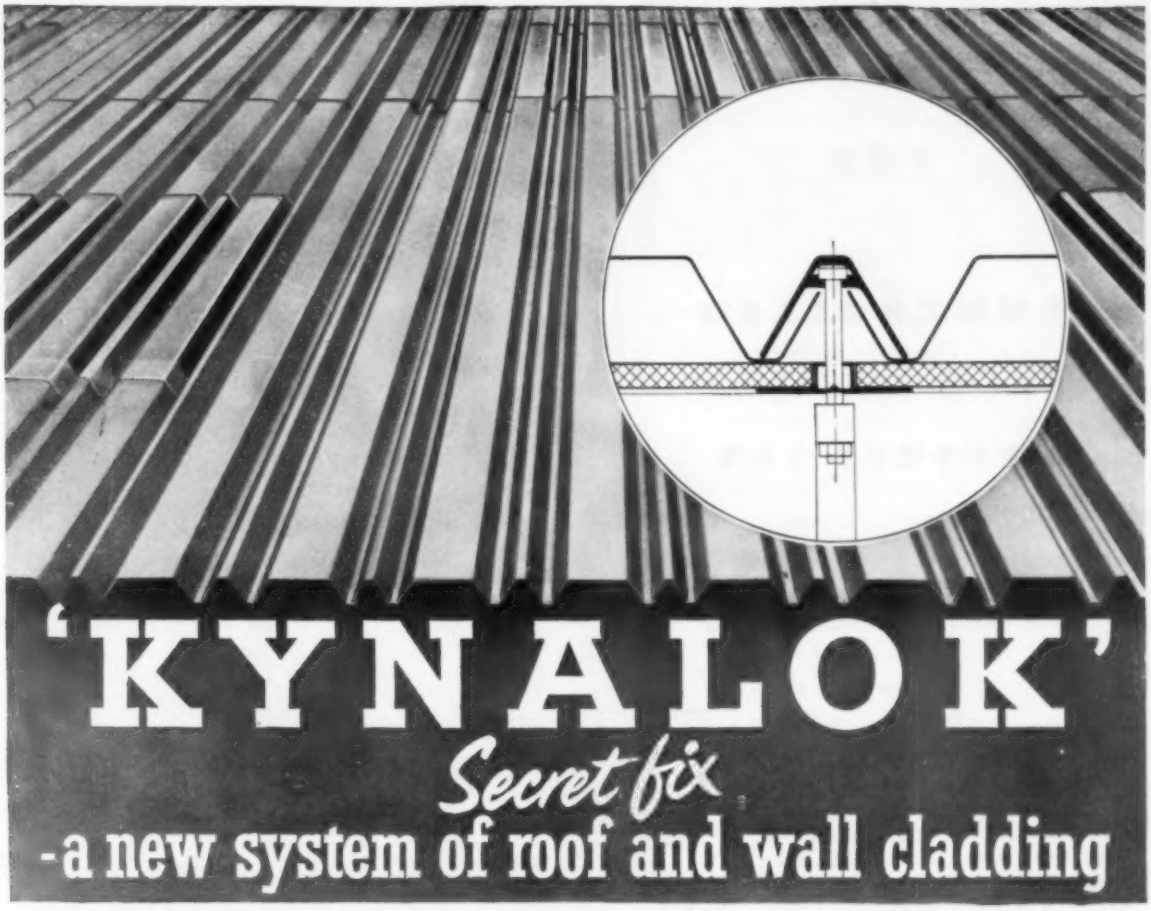

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-a new system of roof and wall cladding

The 'Kynalok' secret-fix system offers a greatly improved method of roof and wall cladding, using 'Kynal' aluminium alloy profiled sheets and extrusions, with provision for insulating lining. Both cladding and insulation are erected at one and the same time, using fixings common to both.

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6. **Insulation lining fixed integrally.**
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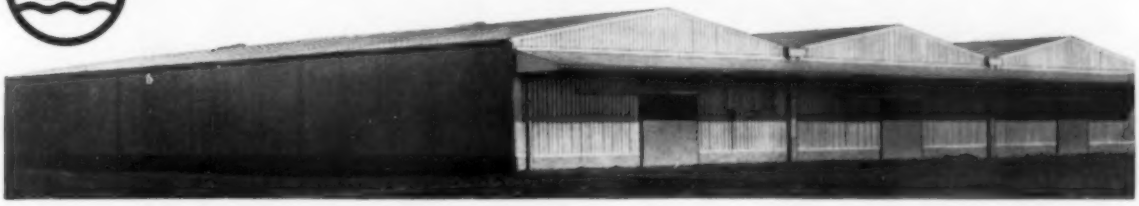

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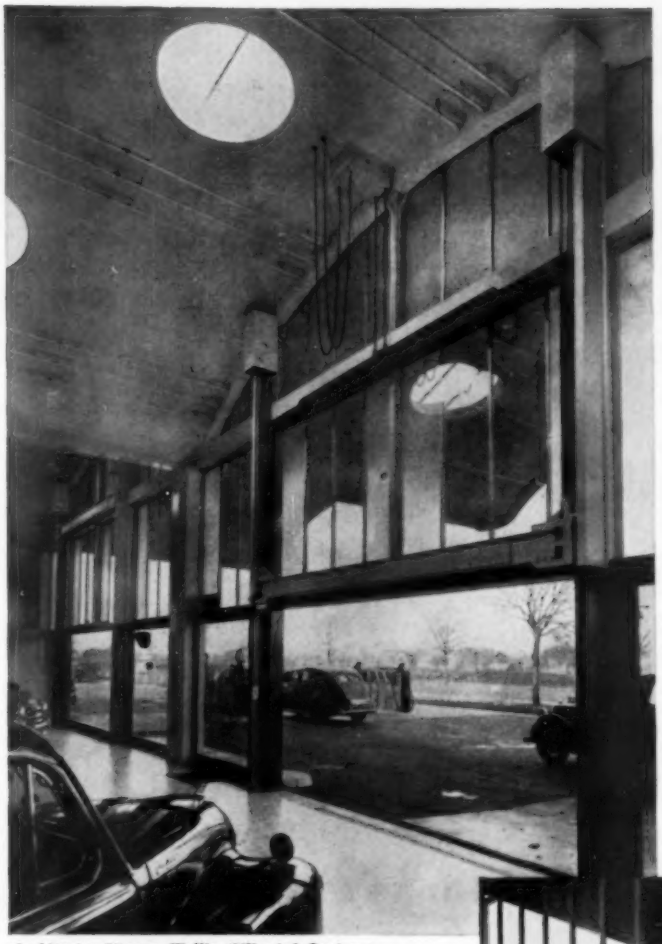

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– have been successfully combined
in this visual frontage
installed for the Perivale Motors
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Two Armour plate glass Entrances
merge with the large windows to give
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of the whole Showroom.
Incorporated in its length
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which disappear behind the high transome
of alternate clear and obscured
plate glass panels,
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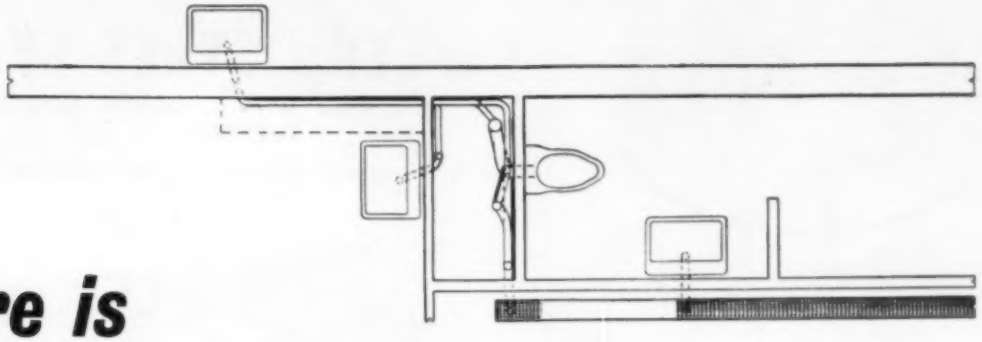
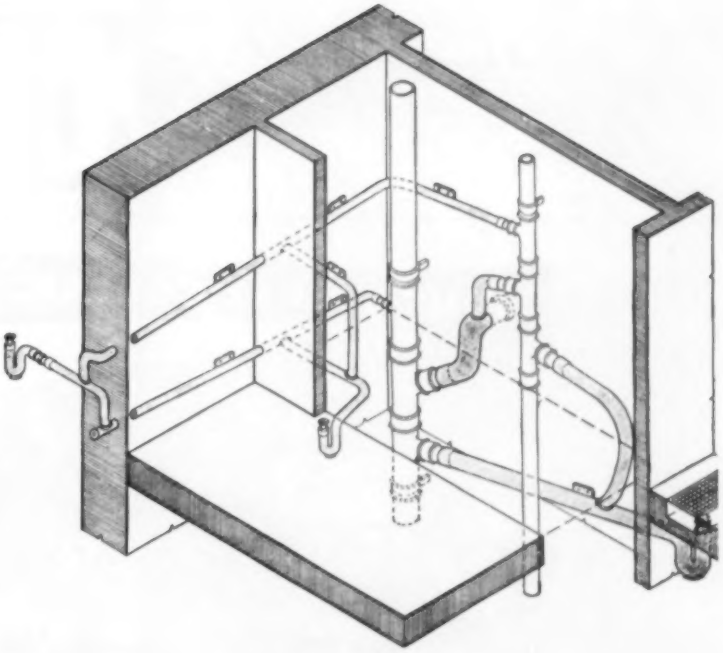


there is more to hospital plumbing than meets the eye

In fact, the pipework is best concealed. For hidden pipework there is no better material than lead pipe because of its high corrosion resistance and the ease with which it can be used for compact work. The illustrations are from "Plumbing for Hospitals," copies of which are available on request.



LEAD LASTS

The Council's Technical Information Bureau will gladly help with problems on the use of Lead Sheet and Pipe in building work. Details of the main uses are given in a series of Information Sheets and Bulletins, which can be obtained by applying to the Council.

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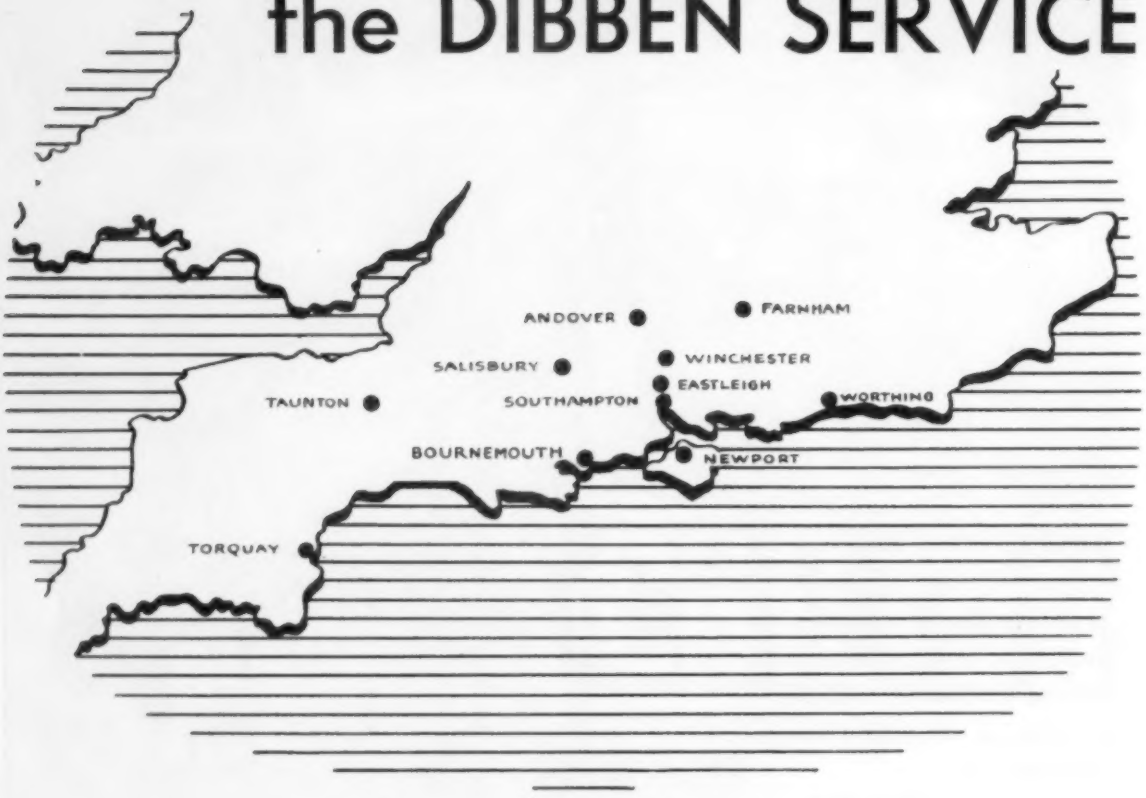

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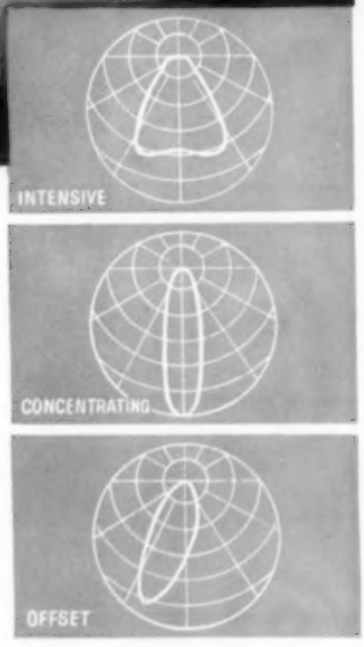
TIR 381

ARCHITECTURAL SCHEMES

A New Lighting Approach



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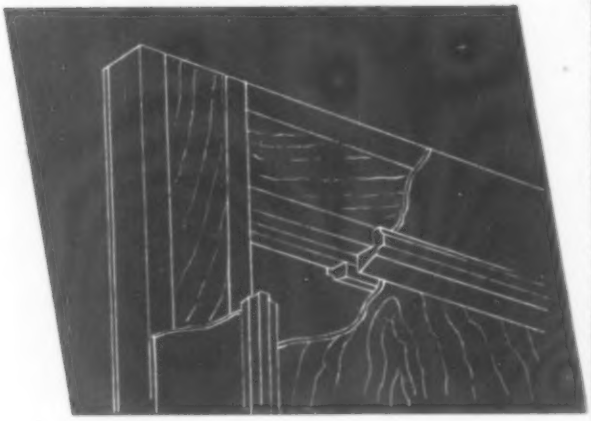
Craftsman-made, from the finest kiln-dried hardwood and suitable for polishing, it is available at a price which brings it well within the range of every better-class project.



These features have building trade appeal

- STILES AND RAILS are of laminated construction, giving greater strength and stability. Full length mahogany facing veneers give a finished thickness of 1¼".
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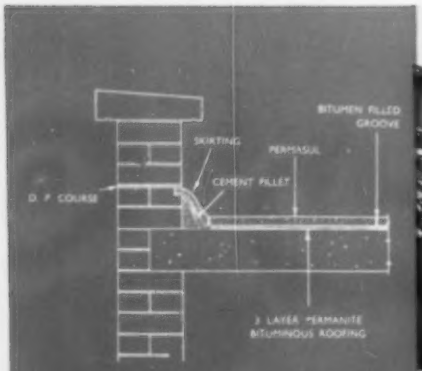
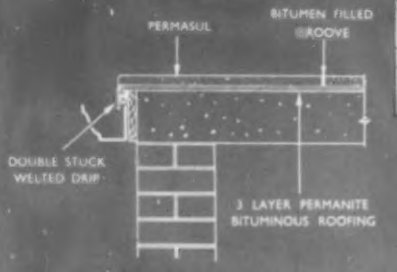
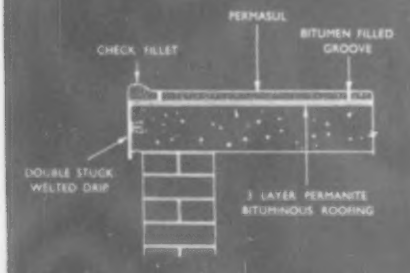
"PERMASUL" BUILT-UP FELT ROOFING



FINISH TO PARAPET WALL



FINISH AT EAVES



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The "Permasul" system has been specially designed to meet the demand for an economical roofing with a surface suitable for foot traffic. This surface makes it ideal for use as Roof Gardens, Balconies, Exercise Space, Promenades, etc. The roofing consists of two or three layers of "Permanite" Bituminous Felt, bonded with hot bitumen and finished on top with "Permasul" screed, grooved into 2ft. square tile pattern; grooves filled with hot bitumen on completion.

Some typical finishes are shown on the left.

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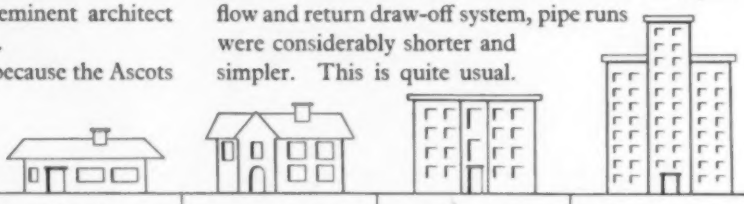
E

Facts

A comparison of installation costs... between an Ascot plus open fire and open fire plus back boiler

An analysis of the actual costs of installing these two popular water heating systems shows that Ascot multipoint heaters are cheaper than back fire boilers in every case but one.

The figures in the chart were not specially prepared. They are from bills of quantities of schemes which had already been completed by an eminent architect before the analysis was contemplated.
Examination of the plans shows that because the Ascots could be sited nearer to bathroom and kitchen draw-off points than the back fire boilers and do not require a flow and return draw-off system, pipe runs were considerably shorter and simpler. This is quite usual.



	BUNGALOW	HOUSE	4 STOREY FLATS	8 10 STOREY FLAT
ASCOT 709 Cost of Water Heater, Coke Grate, tile surround and curb — equipment and installation.	£63 · 9 · 10	£72 · 5 · 1	£67 · 11 · 11 (A)	£65 · 1 · 1 (B)
ASCOT 715 Cost of Balanced Flue Water Heater with air box and flue ducting, Coke Grate, tile surround and curb — equipment and installation.	£74 · 7 · 4	£83 · 1 · 4	£78 · 9 · 5 (A)	£75 · 16 · 1 (B)
BACK FIRE BOILER Cost of Back Fire Boiler, Coke Grate, tile surround and curb — equipment and installation.	£73 · 15 · 4	£87 · 19 · 5	£82 · 4 · 9	£101 · 5 · 8
BACK FIRE BOILER Cost of Back Fire Boiler, Coke Grate, tile surround and curb, electric immersion heater and lagging of pipes and cylinder — equipment and installation.	£97 · 19 · 3	£118 · 11 · 10	£114 · 18 · 2	£140 · 10 · 9

Cost of (A) is higher than (B) due to longer pipe runs.

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Vol. 207 No. 5

THE ARCHITECT & BUILDING NEWS

3 February 1955

The "Architect and Building News" incorporates the "Architect," founded in 1869, and the "Building News," founded in 1854. The annual subscription, inland and overseas, is £2 15s. 0d. post paid: U.S.A. and Canada $9.00

Published by ILIFFE & SONS LTD., DORSET HOUSE, STAMFORD STREET, LONDON, S.E.1
Telephone: WATERLOO 3333 (60 lines). *Telegrams:* "ARCHITONIA, SEDIST, LONDON."

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TRAINING FOR BUILDING

THE industry is now enjoying a boom which shows every sign of continuing for many decades to come. It is important, in the interests of both individual building owners and of the nation, that the work to be done shall be carried out efficiently and economically. Efficient building calls for a highly skilled labour force and a high standard of supervision at all stages of the work, so that it is pertinent, at this juncture, to examine the various steps that are being taken to recruit and train the personnel needed.

In this work the industry is coming up against difficulties for it is failing to attract the better types of boy. Whatever may have been the case in the past the building industry to-day cannot afford to accept poor quality recruits and spend, as is often happening now, a considerable part of the earlier years of a 5-year apprenticeship period teaching youngsters to write and do simple arithmetic; similarly, the time spent by a building student to qualify in the branch of the industry he has chosen is of little help if he is constitutionally incapable of developing useful powers of resourcefulness, organizing ability and leadership. There will always be a niche in any industry, including building, in which young men of this kind can be usefully employed. But the crying need at the moment is for youngsters already possessed of a fair standard of basic education who are just that little bit brighter than their fellows.

Here builders face a special problem. In the past the industry has never been what may be called a "fashionable" one for a career. Engineering, shipbuilding and the various manufacturing industries have appeared to offer more scope, particularly in the technical and executive grades, to young men seeking a career. This may have been so 20 or even 10 years ago, it is far from being the case to-day. New building technique, new materials, mechanization, revolutionary methods of fabricating and handling components, modern accounting and costing systems and efficient site organization—all these offer the chance of a career second to none in interest, variety and financial reward.

Building to-day is far from being a mug's game. There is a tremendous amount to know. Intelligence, skill, enthusiasm, and an innate desire to get things done well and on time go hand in hand with a high level of competition for contracts and the difficulties and frustrations that adverse weather conditions bring. There is all the scope in the world here for young men who want to get on and reach the top.

Yet there are still some who look upon building as a cinderella industry, for the N.F.B.T.E., in its recently published annual report, states: "One of the first steps must be to counteract the unfortunate tendency of some who are in a position to influence boys in the choice of careers to regard the building industry as an unattractive opening for intelligent youths." It is to be hoped that parents, youth employment officers and careers masters in the schools will take note of this and bring themselves up to date with the first-class opportunities that building offers.

What of the training arrangements? The industry seems to be going about things in this field in a workmanlike manner. As far as the crafts are concerned the Apprenticeship Scheme operated by the National Joint Apprenticeship Board is one of the best in the country, the full day that apprentices spend each week at the technical college being a valuable complement to the more practical aspects of their training dealt with in the workshops and on the site. Training courses in general foremanship studies are expected to gain considerable impetus as a result of the preparation of a syllabus for a certificate course (colleges in London, Bristol, Liverpool and Sheffield are running initial experimental certificate courses) and the decision of the City and Guilds of London Institute to make arrangements for the introduction of examinations based on the certificate course leading to the

The Guest of Honour at the Annual Dinner of the National Federation of Building Trades Employers being applauded by Mr. George Grosvenor, The President, and his wife and Mr. Nigel Birch, Minister of Works, and Mrs. Birch.

award of a certificate in general foremanship studies.

Some of the young men who spend their earlier years mastering a building craft move on through the ranks of craft foreman and general foreman, acquire skill in supervision and managerial responsibilities on the way, subsequently making first-rate building executives. It is clearly desirable that this way to the top remains open, but those who run this full course are numerically well below the industry's requirements. The industry requires, in addition, a continuing supply of men with a more complete background of general education who are suitable for technological training in building subjects. In this connection the schemes of articled pupilship now being widely adopted by employers are bound to prove a valuable help.

It has to be conceded, however, that so far as its education and training work is concerned the industry got off to a bad start after the war. Building controls and the uncertainty about materials may have had something to do with this; they scarcely encouraged the introduction of long term policies on training matters. Also, the existence of the Building Apprenticeship and Training Council, although this body did useful work, meant that the industry did not have a fair chance itself clearly to gauge the nature and scale of its recruitment and training problems. Now that most of its activities are in the industry's hands the B.A.T.C. should retire from the field altogether, and leave to the industry the task of developing the comprehensive system of training for all grades it has now inaugurated so that not only will building be attractive to young men seeking a worth-while career but, even more important, the training will be in keeping with the industry's real needs.

EVENTS AND COMMENTS

LING FOR COVENTRY

The news that Arthur Ling, Chief Planning Officer of the L.C.C., had been appointed to succeed Donald Gibson at Coventry arrived just in time to be included as a news item in last week's issue. Ling will be a serious loss to London and I shall watch anxiously for news of his successor. The appointment will not only be difficult to fill but may have considerable bearing on the future of the L.C.C. town planning department which, as you probably know, at present comes under the control of the architect.

To Arthur Ling, warm congratulations. It takes courage to uproot yourself from an office you have worked in for 13 years, and to move to a new part of the country away from all your friends. I imagine, however, that Ling will have little time for anything except work. I am told that he would like to see a new railway station in Coventry as one of the earliest Transport Commission improvements. I hope he will urge the completion of the new hotel, and I would like to hear his views on keeping traffic out of Broadgate in order to make it more of a pedestrian precinct.

P.M. WITH THE N.F.B.T.E.

This year the National Federation of Building Trades' Employers were honoured at their eve of annual general meeting dinner and dance by the presence of Sir Winston Churchill. This was indeed a triumph for the builders and is believed to be Sir Winston's first attendance at a trade-organized function. My impressions of this function are second-hand for I was not there. My agent was impressed by the Prime Minister's sash and jewel of the Garter and the Cross of the Order of Merit. Sir Winston seemed to be in solemn mood but enjoyed his dinner and all that went with it. There was a moment of crisis while his sloping reading desk was being produced. When he began speaking he appeared suddenly to become years younger, and fascinated his audience with one of his inimitable speeches. He made much of his membership of the Amalgamated Union of Building Trade Workers. He explained that there had been some technical difficulties at the time—in 1928—because his cheque had been framed and not cashed. The Prime Minister coined a new phrase when speaking of building productivity. He replaced "labour-saving devices" by "labour-serving devices." The speech was greeted with tremendous applause and musical honours. Against this background Mr. Harvey G. Frost, Senior Vice-President, and Mr. Charles Bowyer, President of the Royal Institution of Chartered Surveyors, dealt with the toast of the guests, and did so extremely well. It was, says my agent, a memorable occasion.

A ROSE IS A ROSE

Mr. Wyndham Goodden, Professor of Textile Design at the R.C.A., gave his inaugural address before a packed house at the R.S.A. last week. If I had hoped to be enlightened on the ins and outs of textile design I was disappointed. Instead Mr. Goodden, speaking on "A Rose is a Rose," in polished phrase and scintillating sentence, piled allusion on quotation while the audience either held its breath in subdued ecstasy or merely looked puzzled. It was certainly a masterly performance of the type which produces—and did produce—such comments as "most polished and brilliant," "pure poetry," and "I should like to read it in print." It certainly sounded very good.

R.C.A. EXHIBITION

The Departments of Painting, Sculpture, Graphic Design and Stained Glass of the Royal College of Art are holding an exhibition at the Victoria and Albert Museum. It is a good exhibition. There is some good stained glass although it is nearly all ecclesiastical in feeling. I think this is mainly because of the dim religious light which is all that is able to penetrate the very deep colours used. Of the small amount of sculpture shown I liked best a seated schoolgirl and an elderly exhibition-goer. The paintings are larger and certainly more cheerful in colour than those shown two years ago in Conduit Street, but no one seems to have the faith to use bright colours. There are two pictures of vultures and one of a plate of cockerels' heads.

The School of Graphic Design once more comes out on top. Here the work is of a truly remarkable standard of excellence. The college announces the foundation of the Lion and Unicorn Press to which you may subscribe five guineas a year and receive each year three books, each impression being limited to 200 copies. This strikes me as something very special and worth while. The R.C.A. is in the enviable position of being able to experiment with new ideas for book production and has the interest and backing of many influential publishers and book producers. This new idea deserves to be a great success.

THERE AND BAKEMA

Faithful members of the A.A. who regularly attend its meetings are having their patience sorely tried this session. Sir Hugh Casson started the trouble with a talk on China in December which lasted 2½ hours; this was smartly followed by Mr. Hancock, of Singapore, with a duration of three hours. On Wednesday last week the Dutch architect, Mr. J. B. Bakema, just failed to equal this with a time of 2 hours 55 min., but as his aircraft was delayed he started late; this meant that the wretched audience sat on its hard seats in the vitiated atmosphere from 7.15 till 11.45.

Mr. Bakema, whose visit was arranged at short notice by the Students' Committee, talked for 1½ hours on Planning by Form. I could not trace very much that was new in the arguments which were put forward most forcefully in Mr. Bakema's now C.I.A.M.-famous variation of the English language. After explaining his philosophy of design with many round Dutch cheese signs made in the air, Mr. Bakema showed us a very great many slides of his interesting shopping centre at Rotterdam. After this there was a complete box of slides on some of his not so interesting housing projects.

Mr. Bakema is, I think, one of the best of the younger Dutch architects; furthermore, he is obviously an enthusiast and should be forgiven much. There was material in his talk for three full-sized lectures and, since the students were paying his expenses, he may have felt

The new Colonial Hospital, San Fernando, Trinidad, British West Indies, which was completed in 1953, and is being formally opened by H.R.H. The Princess Margaret tomorrow. The hospital accommodates 460 beds, and contains departments of Medicine, Surgery, Obstetrics and Gynæcology, Ear, Nose and Throat and Pædiatric. It also has an Outpatients' department and Casualty. The architects are W. H. Watkins, Gray & Partners. Consultants were R. Travers Morgan & Partners, structural, and Roger Preston & Partners, air conditioning. General Contractors were R. A. Farfan & Co. for the foundations, and Ash & Watson for the superstructure. Both firms are from Trinidad.

that he was giving value for money. Certainly, the large number of students present appeared to soak up every word. The members, however, became in general less appreciative as the long evening wore on.

OLD WARSAW

I went to this film show because I hoped to find some clue to the reasons behind the "stone by stone" reconstruction of part of the old city of Warsaw. The film was shown by the Polish Cultural Institute in the British Council Cinema. Mr. Tom Braddock introduced the film. He started well enough in quiet explanatory vein but suddenly switched to a shouting soap-box technique, deafening his audience with eulogies on the wonderful Polish people, with side kicks at "capitalist abortions." There were two films, the first dealing with a remarkable medieval altar piece at Krakow. It was not a good film because it gave no idea of the shape or composition of the screen, but concentrated on the detail of many of the 80-odd full-sized wooden figures. The film of old Warsaw was a considerable disappointment. It was billed as prize-winning, but no details were given. The photography was average to poor, the music strident and the commentary boring and repetitive. The subject was the rebuilding of a large medieval square in the middle of Warsaw as an exact replica of its original self—without the later buildings which had replaced the older buildings before the destruction of the city—these later buildings were Mr. Braddock's "capitalist abortions." According to the commentary the object of the exercise was to restore the heart of the city so that the past could be brought back. For some reason it was considered that old buildings—in appearance, at least—were necessary to give the young a proper sense of history.

It would be churlish to ignore the courage which the Poles have shown in the face of the complete destruction of their capital, and we have all read reports of and seen pictures of the tremendous amount of work they have done towards reconstruction. All the same, this particular piece of fairy tale architecture seems to me to be a tremendous waste of time. The architecture of the restored buildings is not outstandingly good, it is barely interesting. As far as I could see no effort was made to make interiors up to date behind the façades. The buildings are as near as possible replicas, wrought iron, wall paintings and all.

The work was done at breakneck speed, being completed in about a year—and it looks rather like it. The commentator kept up a constant dirge of "it takes a lot of faith to. . . . It takes a lot of love. . . ." until I could have screamed.

You are right. I did not enjoy last week.

ABNER

NEWS OF THE WEEK

Use of Building Labour

The distribution of the building labour force engaged in the different sections of the industry during 1953 and the first three-quarters of 1954 was analysed by the Minister of Works in a reply he gave to Mr. Swingler when Parliament reassembled after the Christmas recess on Jan. 25.

This shows that, on new work, the number engaged on housing rose from 295,000 at the beginning of 1953 to 318,000 at the end; while the number engaged on industrial building declined from 123,000 to 118,000. There were 5,000 men at work on agricultural building for most of the year; and the 33,000 erecting schools in the first quarter increased to 35,000 in the second and 36,000 in the third quarter, but fell back to 33,000 at the end of the year. On all other new work the building force declined steadily during the year from 104,000 to 96,000.

Photo: George Mansell.

Mr. Arthur Ling who, at the age of 41, becomes City Architect and Planning Officer for Coventry at a salary of £2,400 rising to £2,650.

Last year the numbers employed on housing rose from 304,000 to 319,000 in the second and third quarters; and on industrial building from 114,000 to 122,000. Agricultural building occupied 4,000 in the first two quarters, and 6,000 in the third; and the numbers employed on schools, 28,000 at the beginning of the year, became 31,000 in the second quarter and 35,000 in the third. For all other new work the number rose from 95,000 to 101,000 and then to 108,000.

Men engaged on work exempted from authorization and licensing are included in the returns for repair and maintenance (except that for industrial and agricultural buildings an estimate has been made for men employed on work below the exemption limit of £25,000). Here the numbers increased from 407,000 at the beginning of 1953 to 427,000 in the third quarter, and fell back at the end of the year to 417,000. In the first quarter of last year there was a further decline to 411,000, and thus continued during the second and third quarters, when it was 399,000.

The total figures for each quarter varied as follows — 1953 — 957,000, 995,000, 1,002,000, 987,000; 1954— 957,000, 985,000, 989,000. The figures exclude building trades workers directly employed by local authorities public utilities and private firms in other industries—e.g., brewing, shipbuilding, etc. Of these, it is stated, about 25,000 men have been employed throughout 1954 by local authorities on new house construction. The remainder are employed mainly on repairs and maintenance.

Air Pollution Legislation Will Mean More Officials

Sir Hugh Beaver, Chairman of the Government Committee on Air Pollution, addressed members of the Royal Sanitary Institute on January 26. He said that nothing but a comprehensive Government Bill could fully meet all the objectives sought in his Committee's report on air pollution.

The great problem was how they were going to apply and carry out any regulations that might be passed.

The best that could be made of existing legislation was quite insufficient, and a large number of authorities did not even try to obtain the modicum of benefit.

Effective administration by local authorities of existing or proposed air pollution legislation depended upon the existence of officials with the right knowledge, experience and time to perform their duties.

It was a specialist's job. This meant that there must be a considerable expansion in the number of officials trained to be capable of dealing with air pollution.

A heavy responsibility would be laid on local authorities if anything like the recommendations of their Report in regard to smokeless zones and smoke control areas were accepted. It would be a detailed time-consuming matter, as each combustion unit on every building would have to be examined before the practicable boundary of the proposed zone could be drawn.

This would necessitate the increasing, by three times its present size, of the Alkali Inspectorate.

With regard to pollution by exhausts of motor vehicles, he thought the responsibility of enforcing the law would have to continue to rest with the police. But a much more effective method of checking and observing would have to be found.

Regarding smoke from railway engines, complete elimination could only be obtained by electrification and dieselization.

Sir Hugh added that there were some 1,500 smoke measuring recorders in operation in the United Kingdom.

From these the Fuel Research Station received 100,000 reports each year. There was a danger of important research work being submerged by the routine of dealing with reports. The latter, he believed, could be done locally.

He concluded by pleading for close co-operation between neighbouring bodies. Smoke knew no boundaries.

Course at Attingham Park

A residential course on "Prefabrication in Building" from February 14-18, 1955, is being organized by the Birmingham School of Architecture, with the co-operation of Mr. George Trevelyan, at Attingham Park (the Shropshire Adult College, nr. Shrewsbury. Students, and a number of architects, will take part and the lecturers will include:—Mr. Leo De Syllas, Architects' Co-Partnership; Mr. Ken Evans, Hertfordshire County Architects' Department; Mr. H. Johnson, Builder; Mr. Maurice Lee, Architects' Department, Ministry of Education; Mr. Bruce Martin, I/C Modular Co-ordination, B.S.I.; Mr. S. Johnson Marshall, C.B.E., Chief Architect, M.o.E.; Mr. David Medd, Architects' Department, M.o.E.; Mr. S. Morrison, Consultant Architect for Derwent System.

Several manufacturing firms will be represented, with their products, and the course will include visits to prefabricated schools in the Midlands. Messrs. Hills (West Bromwich) have taken a leading part in sponsoring this side of the course.

It is intended to examine the established systems of prefabrication and to discuss the evolution of designs, and their applications.

It is hoped to publish a full report on the course.

APPOINTMENT

Mr. W. Porter Mitchell, A.R.I.B.A., A.M.T.P.I., chief architect, Burton-on-Trent, has been appointed Borough Architect. Burton-on-Trent has recently established a separate Architect's Department.

New Range of Colours for Building

Prompted by the Anglo-American Council on Productivity Report on Simplification, the Paint Manufacturers' Co-operation Committee in 1951 set up the Paint Industry Colour Ranges Committee, to select a limited range of colours that would be acceptable both to the Paint Industry and to large and important users of building paints, like Government Departments and local authorities.

P.I.C.R.C. set about their task by first of all examining in some detail the existing colour ranges of the British Standards Institution, the Ministry of Works, the Air Ministry, the Ministry of Education (Archrome Range) and the L.C.C., and from these, with the aid of the British Colour Council, arrived at an initial selection of 76 colours.

At this stage P.I.C.R.C. decided to invite comments and suggestions from other interested bodies on this selection; and in particular they sought the guidance of the Royal Institute of British Architects on contemporary trends in the use of colours, so that the industry would have full knowledge of the needs and wishes of the architectural profession.

The R.I.B.A. in turn appointed a committee which included representatives of the Ministry of Works, the Ministry of Education, the L.C.C., the Building Research Station, and one of the art schools, to select, with the 76 colours as a basis, a compact, comprehensive and systematic range of paint colours for building which would serve as an instrument of design for the architect. The tasks of this Committee, extending for a period of 26 months, entailed the analysis of several colour ranges in use, together with the examination of trends and various uses of colour. The long and detailed technical work involved was carried out largely at the Building Research Station, which has special experience in this general field.

The range selected by the R.I.B.A. Committee and approved by the Council in October, 1954, was then examined jointly in a series of meetings between representatives of the industry and of the R.I.B.A. In the course of these meetings, certain adjustments and changes were made by agreement to overcome marketing and technical difficulties. This friendly collaboration brought the work to successful completion and has resulted in the production of a range of 101 colours for building, commendable to the industry, the R.I.B.A. and important users of paints, including, it is hoped, the public at large.

The Paint Manufacturers' Co-operation Committee and the Royal Institute are confident that this agreed range provides a sound, systematic and realistic compromise between traditional and contemporary colours, and will serve as an intelligent and practical guide to the selection of harmonious paint colours for buildings. This new range has, in fact, already been adopted by the "Liaison Committee for Building Paint Supplies for Government Departments."

The range has now been submitted to the British Standards Institution with the purpose of its being incorporated in a new British Standard. Arrangements are being made for displaying the new range from January 31 to February 26 at the following places:

London: Royal Institute of British Architects, 66, Portland Place, W.1. British Standards Institution, 2, Park Street, W.1. The Building Centre, 26, Store Street, W.C.1. *Birmingham:* The School of Architecture, Margaret Street, 3. *Manchester:* British Standards Institution. Coronation House, Market Street, W.1. *Glasgow:* The Scottish Building Centre, 425-7, Sauchiehall Street, C.2.

Teamwork in Industry Lecture Course

A course of six lectures on "Teamwork in Industry" will be given at the Building Centre this month. The lectures and discussions are free and are intended for advanced students and assistants in architecture, surveying and other branches of the building industry. The programme has been organized by James C. Kennedy, A.R.I.B.A., assisted by guest speakers and is as follows:—February 14: "The Job—The Importance of a Good Start." February 16: "The Experts have Their Say," by A. Hedley Richards, F.I.L.A. February 17: "Facts and Figures," by E. L. Galloway, A.R.I.C.S. February 21: "Further Preparations," by J. W. J. Leslie, M.I.E.E., M.Con.E. February 23: "Now for the Site Work," by A. E. Le Fort, clerk of works. February 24: "Was it a Good Job?" The lectures and discussions begin at 6 p.m. Tickets for reserved seats obtainable from F. R. Yerbury, Director of the Building Centre, 26, Store Street, W.C.1. (Museum 5400.)

Sign Design Competition

In response to many requests it has been decided to extend the closing date for the Sign Design Competition sponsored by the Electrical Sign Manufacturers' Association. All entries must now arrive at the Association's offices not later than Monday, February 7.

CORRECTIONS

On page 88 of THE ARCHITECT & BUILDING NEWS, issue January 20, the Keith Prowse, New Bond Street, shopfront illustration No. 2 was designed by J. E. Slater, Ltd., in collaboration with Symington, Prince & Pike, Architects, of Leicester.

In *Information Digest* of 20.1.55, the paragraph on "Phorpres," a leaflet issued by the London Brick Co., Ltd., refers to a leaflet long out of print, and should be disregarded. Up-to-date information is in course of preparation, we understand.

COMING EVENTS

Town Planning Institute

February 4 at 6 p.m. Paper on "Redevelopment of Blighted Areas in Birmingham," by Sir Herbert Manzoni, C.B.E., M.I.C.E., at The Livingstone Hall, Broadway, Westminster, S.W.1.

The Ecclesiological Society

February 5 at 2.30 p.m. Visit to St. Saviour's Church, St. George's Square, Pimlico (1864. Thomas Cundy, architect), and St. James-The-Less Church, Thorndike Street, Vauxhall Bridge Road (1862. G. E. Street, architect).

The Royal Institution of Chartered Surveyors

February 7 at 5.30 p.m. Ordinary General Meeting. Address on "Roman London," by W. F. Grimes, C.B.E., M.A., F.S.A., F.M.A., Director of the London Museum, at 12, Great George Street, S.W.1.

The Housing Centre Trust

February 8 at 6 p.m. "Open Forum—Improvements and Conversions." Leaders of the Forum: J. E. Beddoe, Ministry of Housing and Local Government, Felix Walter, F.R.I.B.A. Followed by the film, "There's a Job to be done" (Allied Ironfounders, Ltd.). At 13, Suffolk Street.

The South-Eastern Society of Architects Canterbury District Chapter

February 8 at 7.15 p.m. "Shop Design," by The Westwood Brothers. At Canterbury College of Architecture, St. Peter's Street, Canterbury.

Royal Society of Arts

February 9 at 2.30 p.m. Percy Smith Memorial Lecture, "Public Lettering," by Christian Barman, R.D.I., F.R.I.B.A., Publicity Officer, British Transport Commission. At John Adam Street, Adelphi, W.C.2.

Victoria and Albert Museum

February 9 at 6.15 p.m. "English Villas and Venetian Decorators," by F. J. B. Watson, Wallace Collection. At South Kensington, S.W.7.

I.A.A.S.

February 9 at 6.45 p.m. Annual Dinner and Dance of the London and Home Counties' Branch of the Incorporated Association of Architects and Surveyors, at the Dorchester Hotel.

Incorporated Institute of British Decorators and Interior Designers

February 10 at 6.30 p.m. A lecture on "Mural Painting, Past and Present," by Hans Feibusch, at The Royal Society of Arts.

London Master Builders Association

February 10. Harvey G. Frost, O.B.E., the new President of the National Federation, is to make his first regional visit of the year to the L.M.B.A. He is to be the guest of the L.M.B.A. Council at a luncheon, and at the Council meeting afterwards he is to address the Council and present the National Federation Prizes for the year to winners in the London Region. The President of the L.M.B.A., L. J. Holloway, will preside.

Entrance to Terminal Building

RENFREW AIRPORT BUILDINGS

architects: W. H. KININMONTH (Rowand Anderson Kininmonth & Paul)

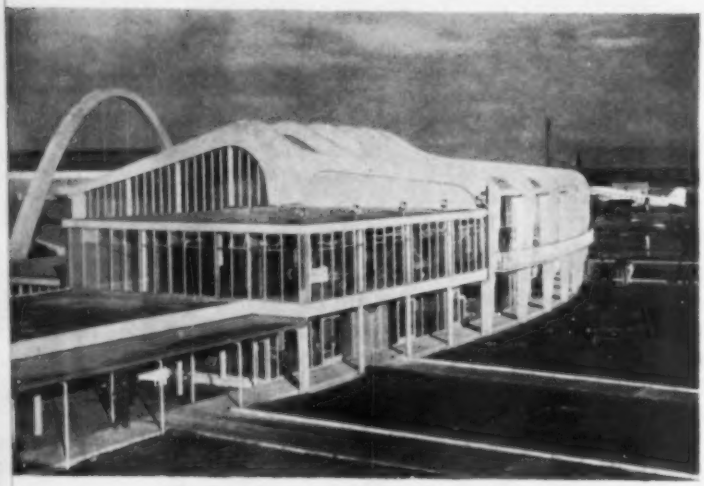
BLOCK PLAN

PRELIMINARY design work was commenced in 1951, but in the following year the clients appreciated that the only means of building within the imposed financial limits was by drastic reduction in their schedule of required accommodation. Therefore fresh designs were immediately prepared and these were generally approved late in 1952.

The clients' requirement for a spectacular building of the greatest publicity value—and of comparatively large dimension for the money available—caused extreme economy in internal finishes, etc., and also the adoption of free and separate competition for each sub-contract. This latter policy has since been proved amply justified, and it was with this contractural method in mind, together with the need for rapid site work, that the prefabricated products of specialist sub-contractors were particularly favoured on this job. Indeed, so very tight is the time schedule that there was no possible option for normal wet materials such as plaster or bricks and mortar. However, site work began only 3 months after the preliminary sketch plans had been presented and it was therefore possible to use reinforced concrete, with its plastic qualities and suitable natural finish, for the main frame of the building.

Renfrew Airport Buildings

The control building and control tower from the apron side, with mets. and ops. block on the extreme right. Below : The terminal building, from the apron side. The way through to the planes is on the extreme left



Preliminary investigation of the sub-soil disclosed a water table (which fluctuated slightly with the tide) at little more than 3ft from ground level and boring operations were abandoned at a depth of 50ft, no possible foundation having been encountered in the increasingly waterlogged sand. Since no system of piling was considered to be economic, it was decided to float the buildings on the dry upper layer of sand.

The main contract for structural work was let early in 1953. The Passenger-handling building was fully operating in November, 1954, and the outstanding work on internal finishes to the Control Tower were completed in the new year.

Layout

The site of the Passengers-handling building was pre-selected for the architects by the need to serve an existing tarmac area, and similarly the Control Tower site by the sight lines to aircraft " holding points " at runway ends, and the internationally agreed height limitations imposed on erections in such proximity to the runways.

While the Terminal Building itself forms a physical barrier between the car parking and aircraft " apron " areas, it should be mentioned that vehicular access is available for " essential " traffic below the B.E.A. office wing, raised on " stilts " to the east of the concourse.

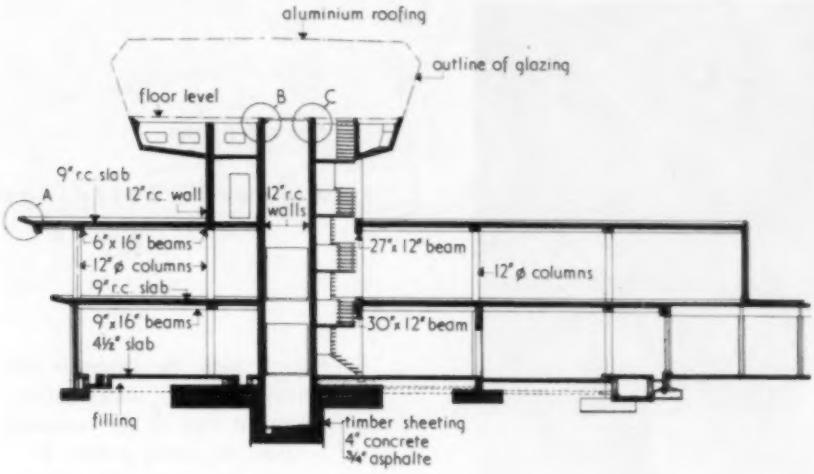
Design

Apparently the clients' first requirement (always excepting the maximum space specification) was for a building of unfamiliar and possibly even controversial form, and reconciling this together with severe financial restrictions and functional needs was perhaps the greatest problem. The structural frame of Reinforced Concrete evolved was necessarily expensive and the finish had therefore to be of the most economical variety, although the buildings have been double glazed throughout and there has been no sacrifice of a strictly practical nature.

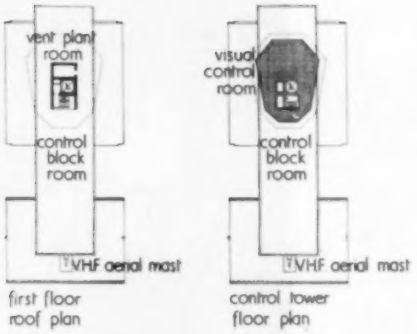
Some convenience in planning was sacrificed to the position of the Balcony Restaurant, which is intended as an attraction to the general public apart from air-travellers.

Included in the clients' requirements for the Visual Control Room was the need for the upper and lower glass faces to be sloped at certain angles from the vertical and for a 4ft 6in clear void below the " false "

[Continued on page 142



SECTION THROUGH CONTROL TOWER.



SCALE: 1in = 40ft

Subcontractors:

Air Conditioning in Control Room: Thermotank, Ltd. *Built-up Roofing:* Wm. Briggs & Co., Ltd. *Ceilings:* Frenger Ceilings, Ltd. *Cement Screeds:* H. Sutton. *Concrete Form Work:* James Laidlaw & Sons, Ltd. *Concourse Roof (Bison Units):* Concrete, Ltd. *Control Tower Roofs (Rock Asphalt):* The Neuchatel Asphalte Co., Ltd. *Control Tower Superstructure:* P. & W. MacLellan, Ltd. *Electrical Work:* The Eastern Electric Services. *Floors:* The National Flooring Co., Ltd. (Wood Block to Dining Gallery); Rowan & Boden, Ltd. (Thermoplastic Tile and Cork Tile in Control Room). *Glass:* Pilkington Bros., Ltd. *Glass Walling to Concourse:* Lenscrete, Ltd. *Glazing to Control Tower ("Insulight Units"):* George G. Kirk & Co. *Heating:* Mackenzie & Moncur, Ltd. *Joinery:* John Cochrane & Co., Ltd. *Kitchen Equipment:* John Kelly & Sons. *Lifts:* J. & E. Hall, Ltd. *Massage Tube System:* The Viaduct Heating and Ventilating Co., Ltd. *Paint:* Scottish Paints, Ltd. *Painting:* George W. Sellara. *Partitions:* Fredk. Braby & Co., Ltd. *Patent Glazing:* Williams & Williams Ltd. *Plumbing:* Archibald Low & Sons, Ltd. *Railings:* William Govan & Co., Ltd. *Sewage Ejector Plant:* Ames Crosta Mills & Co., Ltd. *Tarmacadam Roadways:* Pirie & Co. (Paisley), Ltd. *Windows:* Fredk. Braby & Co., Ltd.

CONTROL BUILDING

1

Renfrew Airport Buildings

Pictures show the concourse and waiting space, 1; dining gallery, 2; and a view of the concourse from the dining gallery, 3

3

2

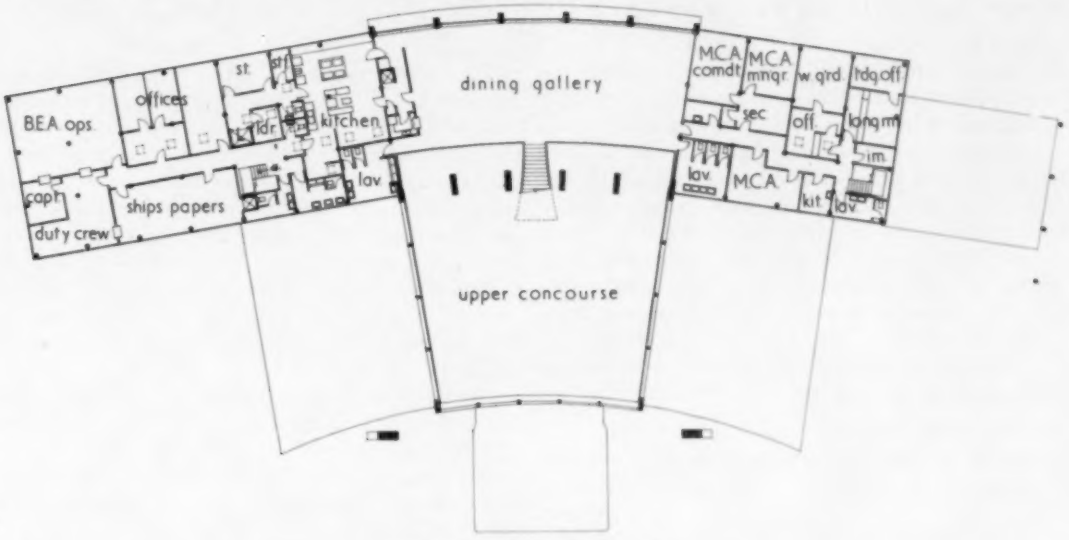
assistant architect:
Michael Laird

consulting engineers to G.C.:
Messrs. Blyth & Blyth

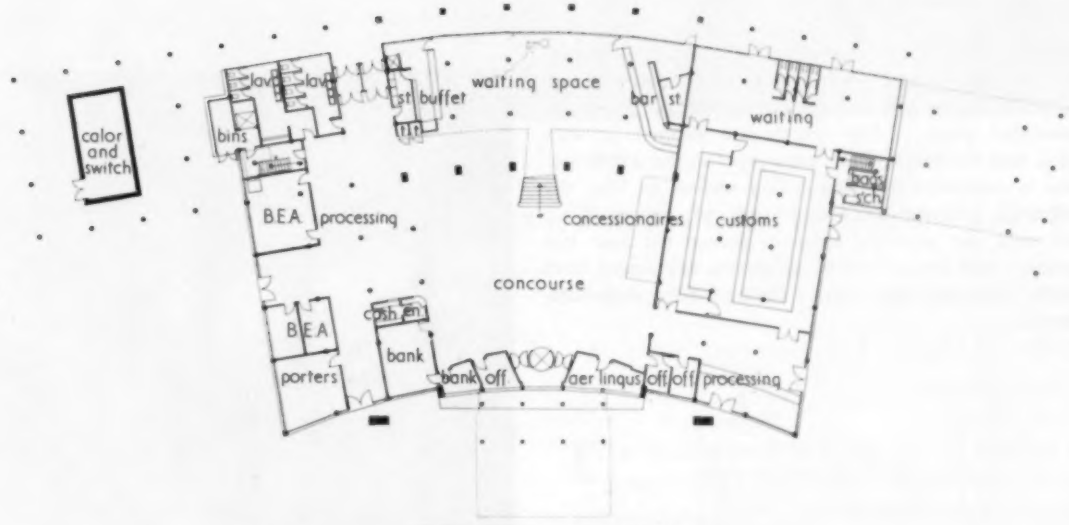
quantity surveyors:
Dansken & Purdie

consultants for heating and electrical work:
Ian Hunter & Partners

general contractors:
A. A. Stuart & Sons (Glasgow) Ltd

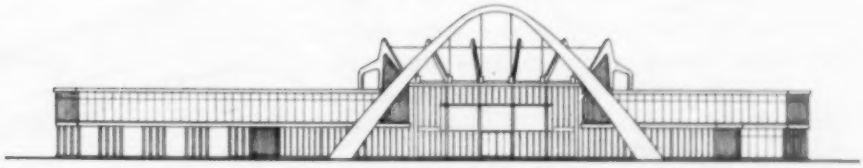


FIRST FLOOR PLAN

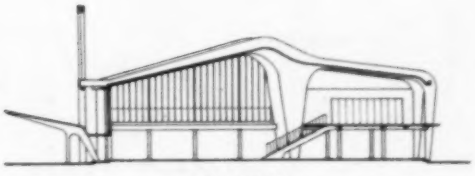


GROUND FLOOR PLAN

TERMINAL BUILDING



FRONT ELEVATION



SECTION

SIDE ELEVATION: SCALE: 1 in – 40 ft

Renfrew Airport Buildings

Continued from page 138

floor; this inevitably caused a building mass which was difficult to resolve with the substructure and it is largely for architectural reasons that this " mushroom " head is cantilevered over the first floor roof—incidentally left free for the use of weather observers, etc. The proposals for the VHF aerials mast were not made known to the architects until after the building work had commenced, so that this was re-designed and accommodated as conveniently as possible with regard to all the circumstances and technical limitations upon its exact disposition. The Control Room is planned as a distorted octagon so that interior reflections at night may be obviated as far as possible.

Materials and Finishes

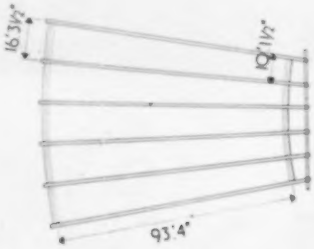
Generally speaking, the structural frame is exposed throughout all the buildings. In order to achieve a maximum flexibility of internal layout the partitions are self-supporting and interchangeable, being constructed of double sheet steel or glass between extruded aluminium sections at 3ft 6in centres; the floors are Thermoplastic tiled in uniform colour throughout, while the ceiling is of the suspended " Frenger " type—i.e., 2ft square aluminium panels easily detached by hand for access and maintenance to the many services concealed above. The panels are clipped between small bore low pressure hot water pipes so that a sufficient heat is conducted over the ceiling surface to heat the building. Three-foot square pads of glasswool are laid over the pipes in order to reduce the heat loss upwards and co-incidentally to absorb any sound from below which may pass beyond the perforated aluminium panels.

All external walls are of glass (which facilitates future extension) and the Visual Control Room is of heavy double glazed units which, on the upper panes, have an outer layer of " anti-sun " so that glare may be suitably diminished. The roof of this room is of light aluminium sheets and the steel frames supporting it are of minimum section in order that virtually uninterrupted 360 deg vision may be achieved. The Control Room is hermetically sealed and forced-air ventilated so that it may suffer the least noise disturbance and also be warm or cooled according to prevailing temperatures.

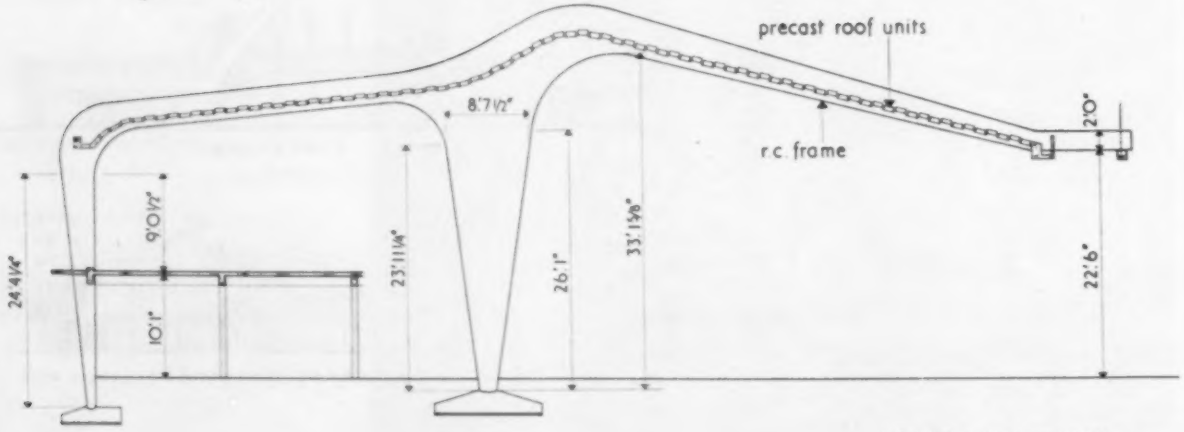
The roofs have been finished with built-up mineral surfaced asphalte except over the first floor of the Control Tower which is liable to pedestrian traffic and is of rock asphalt. (There are no gutters on this building and rain-water pipes pass down the centre of columns inside the building).

The exposed concrete has been painted both externally and internally and the colours throughout are selected from the Archrome Munsell range.

The concourse. Below, detail of structure



KEY PLAN

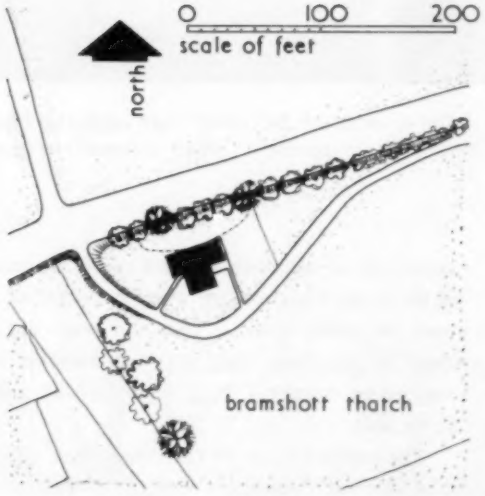


SCALE : 1IN = 16FT

COTTAGE AT BRAMSHOTT, HAMPSHIRE

architect: E. D. JEFFERISS MATHEWS, O.B.E.

assistants: B. G. Green and Marion Dean



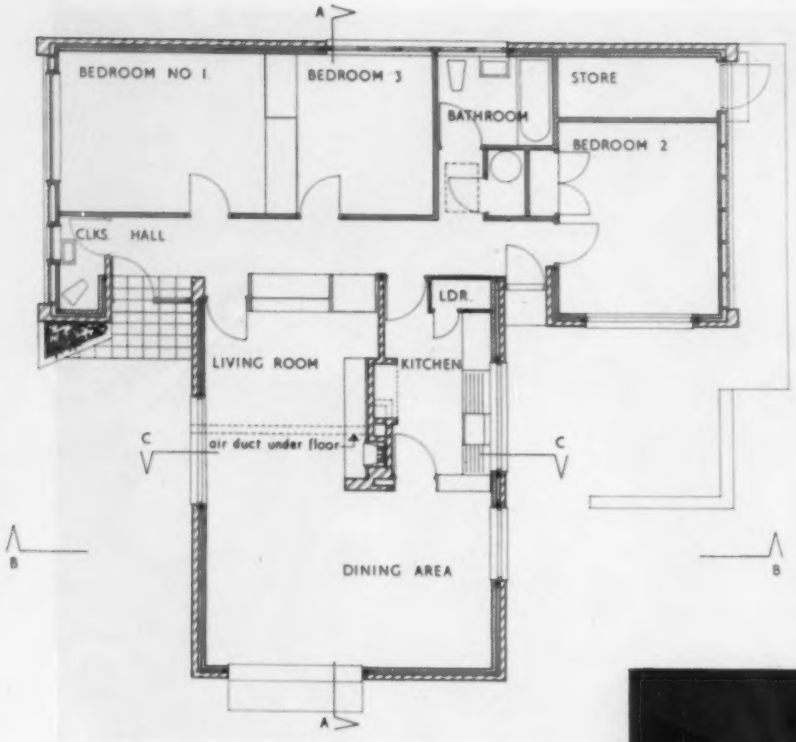
BLOCK PLAN

THE client required a cottage for his gardener and family situated away from the main house. The site chosen was one that might in former times have been occupied by the gate-keeper's lodge, and is one of the few parts of the estate not given over to garden or wheat. The client wished to have a contemporary building which would quickly settle in to the general agricultural atmosphere of its surroundings.

Planning was dictated by the aspect and the close proximity of the large trees bordering the lane. It was decided to keep the living and bedroom areas separate and this was achieved with a single passage at the junction of the " T," which maintained a pleasant aspect for the principal rooms.

Construction is on basically traditional lines with brick and clinker block cavity walls. The roof, however, is of light 4in × 2in members supporting 2in strawboard

Cottage at Bramshott



FLOOR PLAN. SCALE: 1in = 10ft

Dining area of the living room and the French windows to garden. Note exposed roof truss.

panels covered with mineral grit bituminous felt. In order to avoid framing, the ridge is made stouter than normal to support the rafters, and is also supported by vertical members at convenient points. Two such members are formed by cupboards to bedrooms and living room which are an integral part of the structure. The supports to the ridge run down through the cupboards and form one of the mullions. The gable walls of the bedroom block are formed in timber to allow for future extension; the cladding is given relief by lapping 8in × 1in boards on 4in × 1in boards.

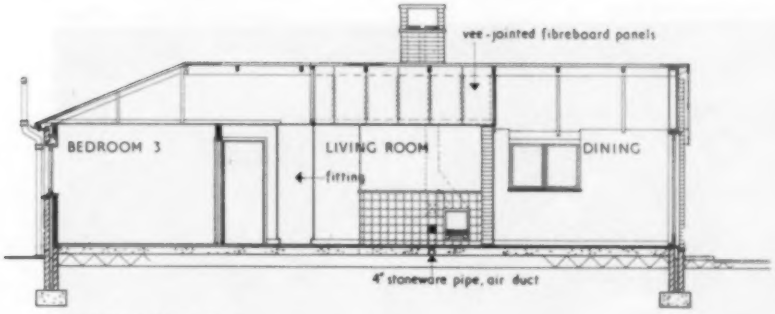
Water and space heating is by means of a back boiler fire in the living room ; radiators are taken off the primary circuit to use spare heat on cold days. The radiators on the back boiler are provided for cold spells when the fire would normally be burning fiercely and would over-heat the cylinder. By putting the radiators fully " on " this dangerous situation can be turned to advantage. When the fire is working normally the radiators will provide background heat. In a more compact system a separate lead to the radiators controlled by a single valve would be an advantage.

The roof space is warmed by a C.I. stove pipe with cover plate of sheet iron arranged above the ceiling of the living room to keep a warm pocket of air over the whole house. This also heats the air space of the large duct over the fireplace and warmed air enters the living room through grilles in the wall.

The contract price for the cottage was £2,700. The General Contractors were A. J. Titcomb & Sons Ltd., Liphook.

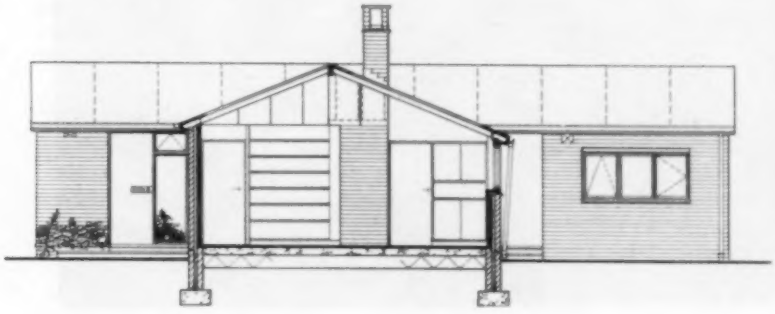
Living room, fireplace and door to kitchen. Note the grilles in the wall above the fireplace through which warmed air passes into the room.

The kitchen, showing door to living room. The cupboards to left of door open from both the living room and kitchen sides.

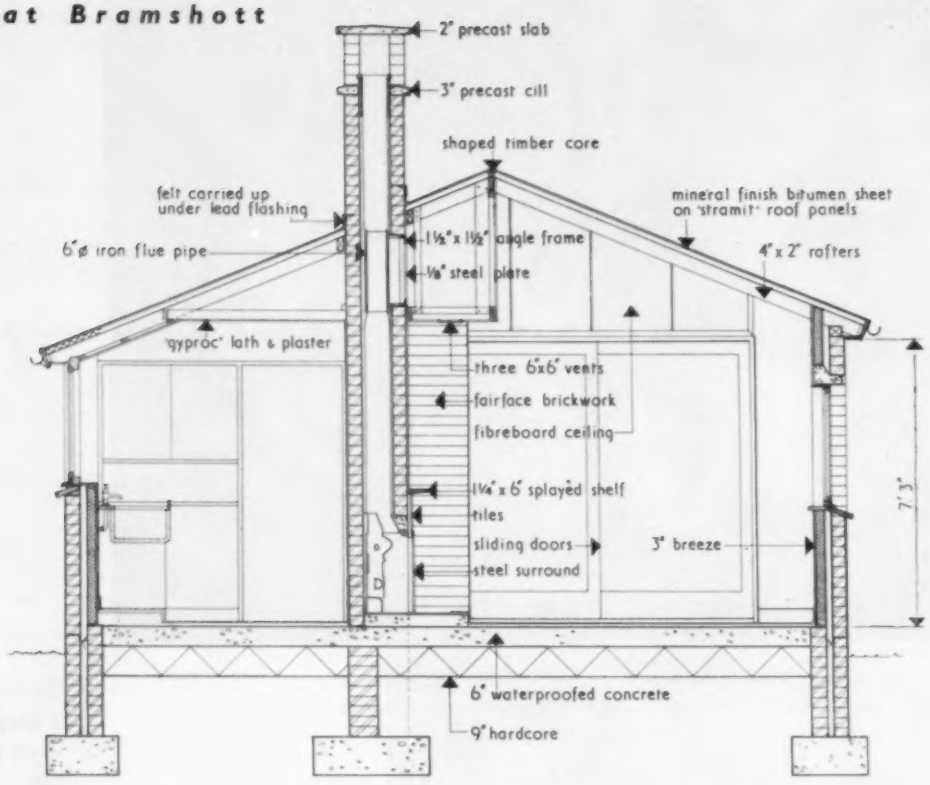


SECTION A-A

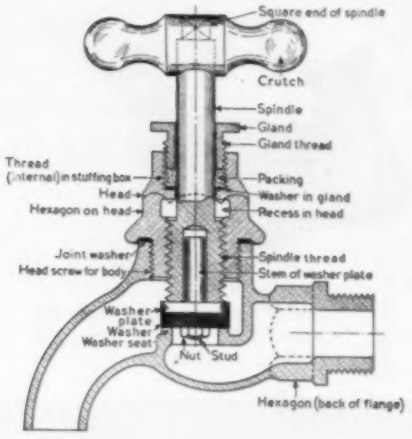
SECTION B-B



Cottage at Bramshott



SECTION C-C
SCALE: 1in=4ft



Taps

This is the fifth article of the series which are appearing once a month dealing with building accessories. The next article will deal with proprietary doors.

COMMON forms of draw off tap are those of the bib type for sinks, and pillar taps for washbasins and baths. The usual pipe sizes for domestic work are ½in for sinks and washbasins and ¾in for baths.

Where mixer fittings are used for sinks the tap portions are covered by B.S.1010; B.S.1010 also gives a sink column suitable for raising a tap above the level of the working top of the sink.

The model Byelaws do not permit the use of combined fittings either for sink, bath or basin where the cold supply is taken direct from the mains, in other words, true mixer fittings are only permitted where there is an intermediate cold supply tank. There are, however, certain combined fittings with single delivery nozzle for hot and cold, but, in fact, a fin or other device keep the two supplies apart until the point of delivery.

The usual finish is chromium plated, but there are many types which have the capstan of plastic materials suitably coloured to indicate "hot" or "cold." Taps for domestic use and public lavatories normally have easy-clean shields over the headwork. These can be loosely fitted and kept from rotating by a "snug" or may be screwed on. If they are screwed the base of the shield should be hexagonal to facilitate removal as the fine threads tend to get bound.

The pillar tap is almost universally used for washbasins and usually for baths when there is not a mixing fitting. The older type of bath had tap entries on the side of the bath instead of on the roll as in modern practice. The "globe" tap that was used for fitting in this position is now not so commonly found. Taps in this position are not liked because under some circumstances there is more risk of back syphonage than with the modern pillar tap, and globe taps cannot be used at all where there is no overflow fitted to the bath, because they could become submerged.

The useful life and smooth working of taps is greatly improved by periodically tightening up the gland nut, thus keeping the packing well against the spindle. This prevents dribbling past the stem whilst in use, prevents sideways thrust on the spindle threads and the consequential looseness due to excessive wear. The decorative chromium-plated finish on taps is usually on a nickel plate base and to keep the plating in good condition it is only necessary to wipe them over with a soft cloth and soapy water. On no account should metal polish be used.

For hot water supplies the washer plate should be permanently attached so as to lift with the spindle, but for cold supplies (off the main) a loose washer plate is usually preferred. There is some difference of opinion on the use of loose washer plates but, generally speaking, Water Authorities prefer them when the taps are on the main. One tap at least in every domestic dwelling should be on the cold water main supply, preferably the kitchen tap.

Tap washers supplied by the manufacturers of the taps are usually satisfactory, but all too often they are later replaced by the user with inferior cheap type washers. These frequently have a short life and give rise to water hammer. Great claims are made for a new cushioned-type washer made of nylon and rubber.

Water hammer or concussion in water pipes is detrimental to the pipes and pipe joints and apart from the noise nuisance can in exceptional circumstances cause fracture in the pipe line. There are some types of washer specially designed for use in taps where the seating has become rough or scored. Some of these are successful for a time, but it is frequently a better policy to replace the tap although a plumber can reseat the tap by means of a special tool, thus giving some extension of life.

The stop tap installed on every feed main is not one that the householder has to use frequently. These are also provided for in B.S.1010 and are very similar in design to the domestic tap except that both ends of the tap are connected to the pipe. The purpose is to control the whole supply particularly to the ball valve of the cold water storage tank where one is used.

In the south of this country storage tanks are largely used, but in the north the taps are quite frequently direct on to the main, as also are the lavatory flushing cisterns. Where this is so, then a number of additional stop taps should be installed so that it is not necessary to shut down completely in order to attend to any particular appliance. The ends of stop taps are screwed British Standard pipe thread, either taper or parallel threads, where galvanized supply pipes are used.

Stop taps can also be obtained with the end (or ends) suitable for copper tube to B.S.S.659 or 1386, and also

The drawing at the top of the page is from B.S.1010 : 1953 which covers taps and valves of the screw-down pattern up to 2in diameter as specified in the M.H. & L.G. Model Water Bye'laws Series XXI—1954.

Taps

for polythene tubing. The coupling ends of such stop taps are to B.S.864.

The most used sizes of the stop taps are ½in and ¾in, but they are obtainable in ¼in, 1in, 1¼in, 1½in and 2in sizes, also above 2in where special conditions apply.

It should be remembered that taps should shut off tightly without the need for exerting much force. To screw down a tap too hard destroys the washer. No tap need be screwed down with force to prevent dripping.

The control tap of tanks and cisterns is ball operated and can be of three types, i.e., Portsmouth, Croydon and Equilibrium ball valves. The Croydon pattern is now losing favour whilst the Equilibrium type is only used in exceptional circumstances. The Portsmouth type is still being made and widely used to the old M.o.H. design but B.S.S.1212 pattern is becoming more popular, especially in those areas where the water has a detrimental effect to ordinary brass fittings. One of the main features of the B.S.S.1212 pattern is that it has a phosphor-bronze seating which can be easily repaired or renewed. Experience has shown that "hard waters" have very little effect on these phosphor-bronze seatings.

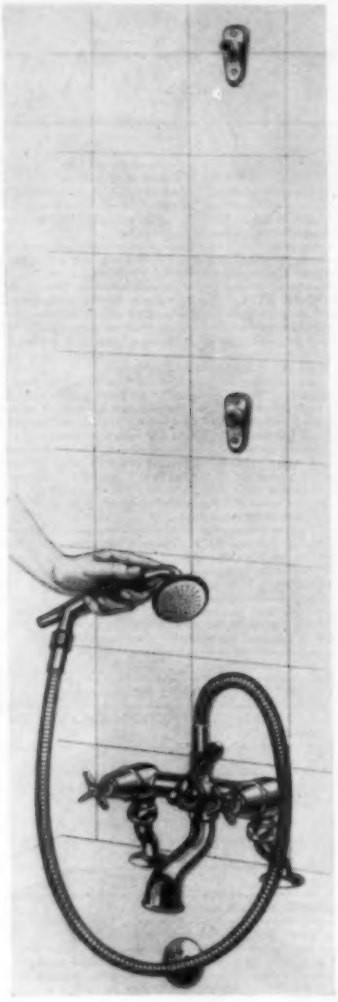
"Slipstream" bath tap unit made by M. Cockburn & Co. Ltd. and designed by J. P. McCrum, A.R.C.A.

Combination supply fitting with pop-up waste, No. S.17, as supplied by B. Finch & Co. Ltd.

Manufacturers and Suppliers appearing in the tables, pages 150—159:

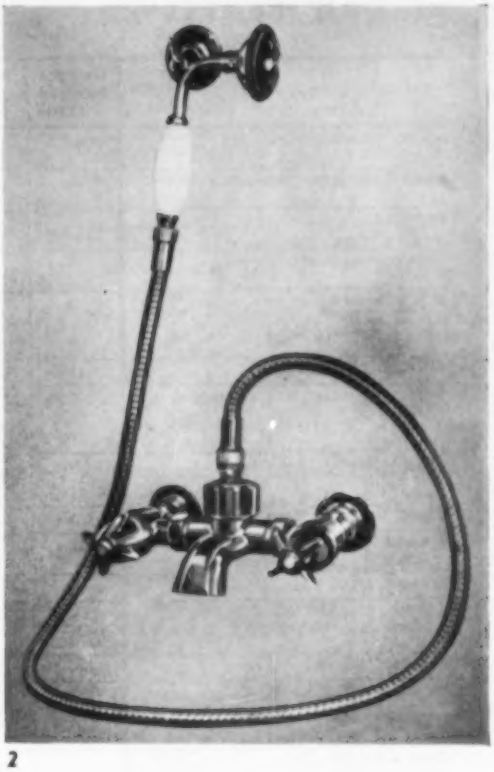
ALLIED IRONFOUNDERS, LTD.,
28 *Brook Street, London, W.1.—Grosvenor* 8941/49.
ASHLEY BRANDON (KENSINGTON), LTD.,
151 *North End Road, London, W.14.—Fulham* 8948 *and* 6769.
BARBER WILSONS & CO., LTD.,
Crawley Road, Westbury Avenue, London, N.22.—Bowes Park 3461.
BARKING BRASSWARE CO., LTD.,
River Road, Barking, Essex.—Rippleway 3057.
BAXENDALE & CO., LTD.,
Miller Street, Manchester, 4.—*Blackfriars* 8282.
HENRY BISSEKER, LTD.,
New Bartholomew Street, Birmingham, 5.—*Midland* 4817/8.
F. H. BOURNER & CO. (ENGINEERS), LTD.,
Manor Royal, Crawley, Sussex.—Crawley 1312/3.
BROAD & CO., LTD.,
4 *South Wharf, Paddington, London, W.2.—Paddington* 7061.
BYROM FOUNDRY & ENGINEERING CO., LTD.,
Tenax Road, Trafford Park, Manchester, 17.—*Trafford Park* 0414.
CAKEBREAD, ROBEY & CO., LTD.,
Caroba Works, High Road, London, N.22.—Bowes Park 1212.
CLARK, HUNT & CO., LTD.,
318-326 *Southbury Road, Enfield, Middlesex.—Howard* 1421.
M. COCKBURN & CO., LTD.,
Gowanbank Ironworks, Falkirk, Stirlingshire.—Falkirk 445.
WILLIAM DIBBEN & SONS, LTD.,
76-79 *St. Mary's Road, Southampton, Hants.—Southampton* 23800.
F. H. EVANS & CO., LTD.,
138 *Plashet Road, London, E.13.—Grangewood* 1604.
EVERED & CO., LTD.,
Surrey Works, Smethwick, 40.—*Smethwick* 0881/6.
B. FINCH & CO., LTD.,
Belvedere Works, Barkingside, Essex.—Valentine 8888.
J. S. & F. FOLKARD, LTD.,
Rectory Lane, Edgware, Middlesex.—Edgware 1656.
A. D. FOULKES, LTD.,
Ludgate Hill, Birmingham, 3.—*Central* 7474/9.
W. N. FROY & SONS, LTD.,
64 *King Street, Hammersmith, London, W.6.—Riverside* 4101.
GARDINER, SONS & CO., LTD.,
Nelson Street, Bristol, 1.—*Bristol* 20011.
GIBBS & DANDY, LTD.,
34 *George Street, Luton, Beds.—Luton* 4110.
ALFRED GOSLETT & CO., LTD.,
127-131 *Charing Cross Road, London, W.C.2.—Gerrard* 7890.
GUMMERS, LTD.,
Effingham Valve Works, Rotherham, Yorks.—Rotherham 4865.
HILLS (WEST BROMWICH), LTD.,
Chapone Place, Dean Street, London, W.1.—Gerrard 0526.
KING & CO., LTD.,
Holy Trinity Church Side, Hull, Yorks.—Hull 15141.
JOHN KNOWLES & CO. (LONDON), LTD.,
38-40 *St. Pancras Way, London, N.W.1.—Euston* 1611.
FRANK LOVE, LTD.,
45-47 *Westminster Bridge Road, London, S.E.1.—Waterloo* 5242.
NICHOLLS & CLARKE, LTD.,
Niclar House, Shoreditch, London, E.1.—Bishopsgate 4842.
NORLOND SERVICE (BUILDERS MERCHANTS), LTD.,
724 *Holloway Road, London, N.19.—Archway* 3010.
H. R. PAUL & SON, LTD.,
Broad Street, Barry, Glamorgan, S. Wales.—Barry 148.
PEGLERS, LTD.,
Prestex House, Marshalsea Road, London, S.E.1.—Hop. 2461.
ROWE BROS. & CO., LTD.,
Victoria House, Queen Street, Exeter, Devon.—Exeter 4134.
ROWNSON, DREW & CLYDESDALE, LTD.,
225 *Upper Thames Street, London, E.C.4.—Waterloo* 6321.
SANBRA, LTD.,
Sanbra Works, Aston Hall Road, Birmingham, 6.—*East* 1231/5.
J. H. SANKEY & SON, LTD.,
Aldwych House, London, W.C.2.—Holborn 6949.
SHANKS & CO., LTD.,
Tubal Works, Barrhead, nr. Glasgow.—Barrhead 1061.
STANDARD RANGE & FOUNDRY CO., LTD.,
Queens Road, Watford, Herts.—Watford 6484.
STEDALL & CO., LTD.,
164 *High Holborn, London, W.C.1.—Temple Bar* 1540.
TEUTEN-DAVIS BENNETT, LTD.,
206 *Long Lane, London, S.E.1.—Hop.* 4821.

Shower Fittings



1

1. *Shower attachment No. 3091-W "High-Low," made by Barking Brassware Co. Ltd., for use with their mixer. One socket is fixed 4ft above the floor and one 4ft above mixer outlet. Spigot on hand shower may be inserted into lower socket for children and higher one as overhead shower for adults.*



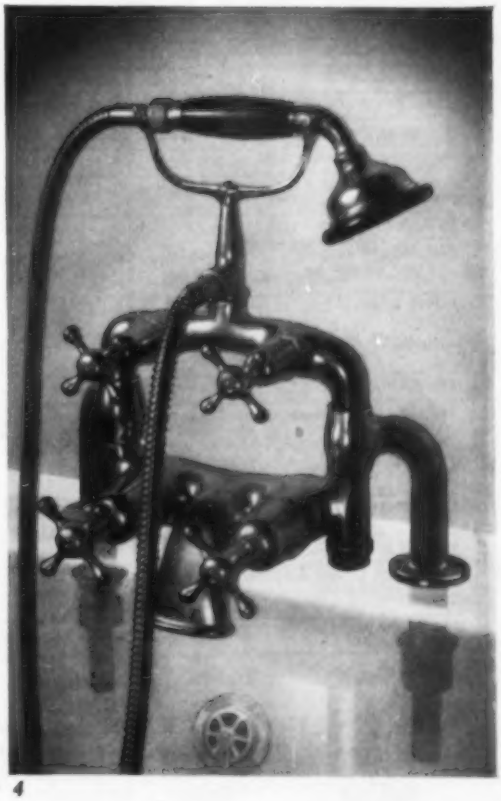
2

2. *Universal "Supamix" bath set complete with flexible tube, spray and wall hook as wall fitting. Made by F. H. Bourner & Co. (Engineers) Ltd., this same model also fits inside bath or as a pillar fitting.*

3

3. *C.P. Pillar Bath mixer, No. 2056, with hand shower. Made by Henry Bisseker Ltd. to B.S.S.1010 ($\frac{3}{4}$in) with inlets adjustable to suit centres from 5in to 11in. Can be made to fit on roll or through the end of bath or to fix on wall.*

4. *"Prestex" No. B.S.540 combination bath mixer made by Peglers Ltd., to B.S.S.1010. Suitable for use where cold water is supplied from storage cistern.*



4

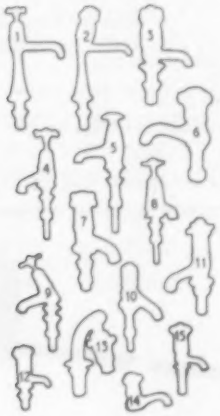
PILLAR TAPS

Supplier	Designs Stocked or Made	Nominal Size Min.	Nominal Size Max.	Price Range	Remarks
ALLIED IRONFOUNDERS LTD.	Many	½"	1"	17/5 to 115/8 per pair	Design produced with extended body and long copper tail. Catalogue available
ASHLEY BRANDON (Kensington) LTD.	Many	½"	¾"	On application	Best seller: "Wear-Well" valve fitted with patent long life washer and covered by 5 year guarantee. Catalogue available
BAXENDALE & CO. LTD.	11	½"	¾"	13/8 to 25/-	Best seller: Type to B.S.S. 1010/53. Also available in diamond and octagonal shapes. Catalogue available.
HENRY BISSEKER LTD.	6	½"	¾"	On application	Covers standard, fireclay, inclined, high neck and upturned nose patterns. Catalogue available. Wholesale only
F. H. BOURNER & CO. (Engineers) LTD.	8	½"	¾"	22/- to 37/6	Best seller: Model RT/A. The complete domestic range of "Supatap" incorporates a check valve which enables the washer to be changed in 30 seconds without turning off the mains supply and without using tools. Catalogue available
BROAD & CO. LTD.	12	½"	¾"	15/6 to 60/-	Best seller: M.O.132. Catalogue available
BYROM FOUNDRY & ENGINEERING CO. LTD.	2	½"	¾"	On application	Catalogue available. The "Twinseal" tap does not rely on a washer to seal off the water. Instead the twin seals slide up and down a polished cylinder totally cutting off supply before the tap has been turned to the fullest extent.
CAKEBREAD, ROBEY & CO. LTD.	10	½"	¾"	15/6 to 36/8	Several luxury type models also high waisted sink pillars stocked, also coloured ears for the "Supatap" range. Catalogue available
CLARK, HUNT & CO. LTD.	3	½"	¾"	On application	Catalogue in course of preparation
WILLIAM DIBBEN & SONS LTD.	22	½"	¾"	27/- to 125/- per pair	Best sellers: Nos. P319 and P329. Various patterns, many of modern design, are kept in stock.
B. FINCH & CO. LTD.	10	½"	1"	On application	Catalogue available
J. S. & F. FOLKARD LTD.	6	½"	¾"	7/6 to 35/-	Best seller: No. 52 high waisted pillar valve with nose projecting 4½" which projects water at a slightly forward angle. Back syphonage danger eliminated. Catalogue available.
A. D. FOULKES LTD.	Many	½"	¾"	14/- to 19/-	—
W. N. FROY & SONS LTD.	18	½"	1"	On application	Best seller: No. S857 (B.S.S. Pattern). Catalogue available
GARDINER, SONS & CO. LTD.	15	½"	¾"	17/9 to 52/3	Best sellers Nos. Y9690 (½") and Y9903 (¾"). Catalogue will shortly be available
GIBBS & DANDY LTD.	5	½"	¾"	On application	—
ALFRED GOSLETT & CO. LTD.	6	½"	¾"	½"—28/- to 68/- per pair ¾"—38/- to 90/- per pair	Best sellers: ½" and ¾" C.P. Easy clean type to B.S.S. 1010. Catalogue available
HILLS (West Bromwich) LTD.	4	½"	¾"	13/3 to 18/-	—
KING & CO. LTD.	Many	½"	¾"	On application	—
JOHN KNOWLES & CO. (London) LTD.	Many	All sizes	All sizes	On application	Catalogue available. Specials supplied
FRANK LOVE LTD.	Many	All sizes	All sizes	On application	Catalogue available. Wholesale only
NICHOLLS & CLARKE LTD.	12	½"	1"	Up to 40/-	Best seller: No. S.330. Specials supplied. Catalogue available
NORLOND SERVICE (Builders' Merchants) LTD.	7	½"	¾"	½"—14/- to 62/- ¾"—19/- to 78/-	Best seller: "Supatap." Catalogue available
H. R. PAUL & SON LTD.	3	½"	¾"	On application	Best seller: B.S.S. 1010/53. Specials supplied.
PEGLERS LTD.	9	½"	1"	On application	Direct sales confined to Ironmongers and Wholesale Builders' Merchants. Catalogue available showing large and varied selection of fittings.
ROWE BROS. & CO. LTD.	21	½"	¾"	12/- to 39/6	Best seller: "Rowe's Improved" pattern to B.S.S. 1010 with easy clean shield and C.P. disc with earthenware tablet marked "hot" or "cold" which can be supplied in colours to match coloured sanitary ware. Catalogue available.
ROWNSON, DREW & CLYDESDALE LTD.	Many	All sizes	All sizes	On application	Specials supplied.
SANBRA LTD. (incorporating: Conex-Terna Ltd., Sandwell Casting Co., Hot Pressed Products Ltd. and Sanbra (S.A.) (Pty.) Ltd. of South Africa).	Many	½"	¾"	On application	The "Easilyne" range has been awarded the Good Housekeeping Institute seal of merit. No. 5372 EC Domestic pattern (B.S.S. 1010/53) high necked Pillar Cock has a round nose serrated for easy attachment of standard rubber hose for the filling of washing machines, etc. Catalogue available.
J. H. SANKEY & SON LTD.	3	½"	¾"	½"—14/- to 17/6 ¾"—19/- to 24/6	Best seller: B.S.S. 1010 type easy clean in C.P. Catalogue available
SHANKS & CO. LTD.	Many	½"	¾"	On application	Catalogue available
STANDARD RANGE & FOUNDRY LTD.	Many	½"	1"	On application	Catalogue available. Specials supplied
STEDALL & CO. LTD.	Many	½"	¾"	On application	Catalogue available.
TEUTEN-DAVIS BENNETT LTD.	Many	½"	1¼"	24/- to 240/- per pair	Specials supplied

Two C.P. bath supply fittings supplied by Broad & Co. Ltd. Left: ¾in valves with cast engraved lion's head 5in wide x 6in high x 4in projection. Right: ¾in valves with cast engraved dolphin 4½in wide x 8in high x 4in projection.

Pillar Taps

1. No. 5372EC. " Domestic " high necked Pillar Cock made by Sanbra Ltd. Round nose serrated for attachment of rubber hose.
2. No. 5371ELMI " Easilyne " ½in. inclined head, high necked, pillar cock made by Sanbra Ltd.
3. No. 5301ELM " Easilyne " ½in. pillar cock made by Sanbra Ltd.
4. " Prestex " No. BS759/8 octagonal pattern ½in. or ¾in. basin and bath tap made by Peglers Ltd.
5. " Prestex " self closing non-concussive pillar tap made by Peglers Ltd. (No. 876BNC.C.P.).
6. No. 7762 pillar tap supplied by Gardiner Sons & Co. Ltd.
7. No. 02531 " Colour Twist " ½in. or ¾in. pillar cock made by Evered & Co. Ltd. Made from brass with coloured plastic tops.
8. " Prestex " No. BS759DS diamond shape basin and bath tap made by Peglers Ltd.
9. No. S806 C.P. inclined body pillar tap as supplied by B. Finch & Co. Ltd.
10. No. 2720/4/6/8 " Barwil " non-concussive self-closing spring action tap. Made by Barber Wilsons & Co. Ltd.
11. " Rowe's Improved " pillar tap to B.S.1010 supplied by Rowe Bros. & Co. Ltd. Earthenware H. & C. discs can be supplied in various colours.
12. No. 1101EL " Easilyne " pillar cock made by Sanbra Ltd. with bakelite cover.
13. " Supatap " model RT/A ½in. BSP tap made by F. H. Bourner & Co. (Engineers) Ltd. Incorporating anti-spalsh and simple washer change.
14. " Sheerline " No. 53/49 pillar tap made by Shanks & Co. Ltd. " Hot " disc coloured red and " cold " blue.
15. No. 1101EL " Easilyne " pillar cock made by Sanbra Ltd. with C.P. cover.



BIB TAPS

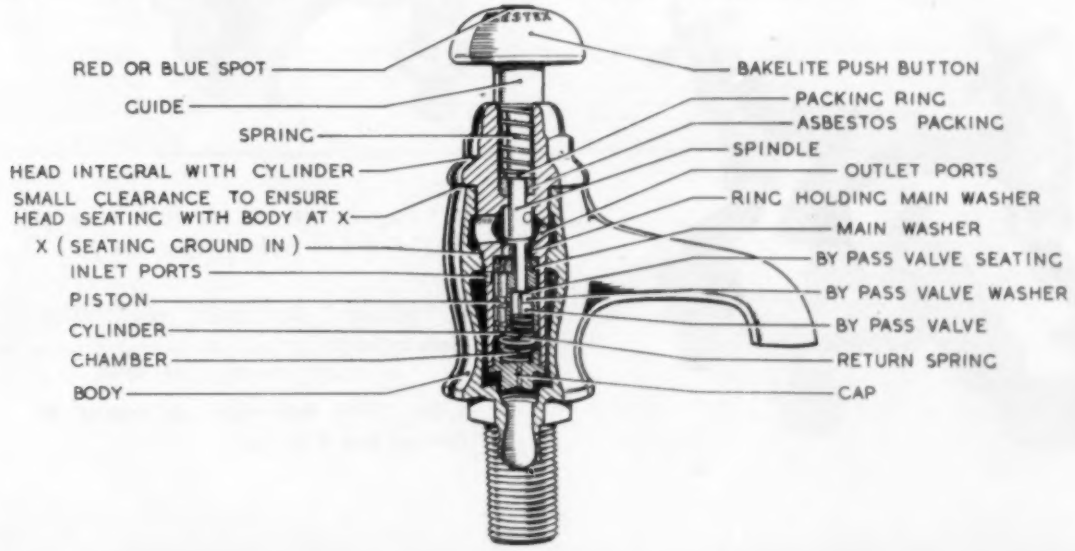
Supplier	Designs Stocked or Made	Nominal Size Min.	Nominal Size Max.	Price Range	Remarks
ALLIED IRONFOUNDERS LTD.	Many	½"	¾"	16/5 to 20/5 per pair	Design available with inclined body. Catalogue produced
ASHLEY BRANDON (Kensington) LTD. ...	Many	½"	—	On application	Best seller: "Wear-Well" valve fitted with patent long-life washer and covered by 5-year guarantee. Catalogue available
BAXENDALE & CO. LTD.	6	½"	¾"	10/6 to 19/-	Best seller: Type to BSS 1010/53. Catalogue available
HENRY BISSEKER LTD.	7	½"	1"	On application	Can be supplied with schoolboard tops and keys. Catalogue available. Wholesale only
F. H. BOURNER & CO. (Engineers) LTD. ...	9	½"	¾"	16/3 to 37/-	Best seller: Model "A." The complete domestic range of "Supatap" incorporates a check valve which enables the washer to be changed in 30 seconds without turning off the mains supply and without using tools. Catalogue available
BROAD & CO. LTD.	6	½"	¾"	12/9 to 18/1	Best seller: M.O.441. Catalogue available
BYROM FOUNDRY & ENGINEERING CO. LTD.	3	½"	¾"	On application	Catalogue available. The "Twinseal" tap does not rely on a washer to seal off the water. Instead the twin seals slide up and down a polished cylinder totally cutting off supply before the tap has been turned to the fullest extent
CAKEBREAD ROBEY & CO. LTD.	12	½"	1"	8/10 to 29/6	Coloured ears stocked in the "Supatap" range. Catalogue available
CLARK HUNT & CO. LTD.	7	½"	1"	On application	Best seller: ½" B.S.S. Catalogue in course of preparation
WILLIAM DIBBEN & SONS LTD.	15	½"	1"	8/6 to 79/-	Best sellers: Nos. P.219 and P.236. Various patterns, many of modern design, are kept in stock
B. FINCH & CO. LTD.	6	½"	¾"	On application	Catalogue available
J. S. & F. FOLKARD LTD.	6	½"	¾"	7/6 to 30/-	Catalogue available
A. D. FOULKES LTD.	Many	½"	¾"	8/6 to 15/-	Supplied in C. P. and brass
W. N. FROY & SONS LTD.	13	½"	1½"	On application	Best seller: No. S.903 (B.S.S. pattern). Catalogue available
GARDINER SONS & CO. LTD.	11	⅜"	¾"	8/2 to 45/3	Best sellers: Nos. G.7951, G.7600 (Supatap) and G.7966 (non-concussive easy-clean spring bibcock). Catalogue will shortly be available
GIBBS & DANDY LTD.	4	⅜"	1½"	On application	—
ALFRED GOSLETT & CO. LTD.	3	½"	¾"	½"—17/- to 29/4 per pair. ¾"—24/6 to 32/6 per pair	Best seller: ½" C.P. Easy clean type to B.S.S. 1010. Catalogue available
HILLS (West Bromwich) Ltd.	3	½"	¾"	8/- to 15/6	—
KING & CO. LTD.	Many	½"	¾"	On application	—
JOHN KNOWLES & CO. (London) LTD. ...	Many	All sizes	All sizes	On application	Catalogue available. Specials supplied
FRANK LOVE LTD.	Many	All sizes	All sizes	On application	Catalogue available. Wholesale only.
NICHOLLS & CLARKE LTD.	12	½"	1"	7/- to 40/-	Best seller: ½" C.P. Easy-clean. Catalogue available. Specials supplied
NORLOND SERVICE (Builders' Merchants) LTD.	9	½"	¾"	½"—8/6 to 17/- ¾"—12/3 to 25/6	Best seller: "Supatap." Catalogue available
H. R. PAUL & SON LTD.	6	½"	1"	On application	Best seller: BSS.1010/53. Specials supplied
PEGLERS LTD.	14	⅜"	1"	On application	Direct sales confined to Ironmongers and Wholesale Builders' Merchants. Catalogue available showing large and varied selection of fittings
ROWE BROS. & CO. LTD.	19	½"	1"	7/7 to 31/7	Best seller: "Rowe's Improved" pattern to BSS.1010 with easy clean shield and C.P. disc with earthenware tablet marked "hot" or "cold" which can be supplied in colours to match coloured sanitary ware. Catalogue available
ROWNSON, DREW & CLYDESDALE LTD. ...	Many	All sizes	All sizes	On application	Specials supplied
SANBRA LTD. (incorporating: Conex-Terna Ltd., Sandwell Casting Co., Hot Pressed Products Ltd. and Sanbra (S.A.) (Pty.) Ltd. of South Africa).	Many	½"	1"	On application	The "Easilyne" range has been awarded the Good Housekeeping Institute seal of merit. Catalogue available
J. H. SANKEY & SON LTD.	4	½"	¾"	8/6 to 13/6	Best seller: BSS.1010 type easy clean in C.P. Catalogue available
SHANKS & CO. LTD.	Many	½"	¾"	On application	Catalogue available
STANDARD RANGE & FOUNDRY LTD. ...	Many	½"	1"	On application	Catalogue available. Specials supplied
STEDALL & CO. LTD.	Many	½"	1"	On application	Catalogue available
TEUTEN-DAVIS BENNETT LTD.	Many	½"	2"	7/9 to 140/- per pair	Specials supplied

Brass "Croydon" pattern ½in ball valve No. M845 made by Peglers Ltd. Length of lever 10½in, screw 1¼in, bore ⅜in.

Bib Taps

1 and 2. *" Supatap " flanged swan-neck bib and model No. 2A ½in BSP made by F. H. Bourner & Co. (Engineers) Ltd. Incorporating anti-splash and simple washer change.* **3.** *" Prestex " No. BS.160ECCP Globe bath cock, inclined pattern made by Peglers Ltd.* **4.** *No. 1102EL " Easilyne " bib cock with C.P. cover made by Sanbra Ltd.* **5.** *No. 53 " Full Stop " washerless bib cock made by F. H. Evans & Co. Incorporates the " Full-stop " combined washer and seating.* **6.** *No. 1102EL " Easilyne" bib cock with bakelite cover, made by Sanbra Ltd.* **7.** *No. S229 bib cock as supplied by B. Finch & Co. Ltd.* **8.** *No. O2533 " Colour Twist " ½in sink bib cock with plastic tops, made by Evered & Co. Ltd.* **9.** *" Prestex " self closing non-concussive bib tap No. 880BNCCP, made by Peglers Ltd., size ½in or ¾in.*

Below: " Prestex " non-concussive spring cock made by Peglers Ltd. By-pass valve opens when top is depressed thus expelling water from chamber by lowering of piston: main valve then opens and water flows through via inlet and outlet ports. Operation reversed in closing; by-pass valve is closed by pressure of return spring which raises piston and main washer. Piston can only close as quickly as water is allowed to flow into chamber through small clearance between piston and cylinder. This delaying action ensures that returning main valve closes gently and eliminates concussion.



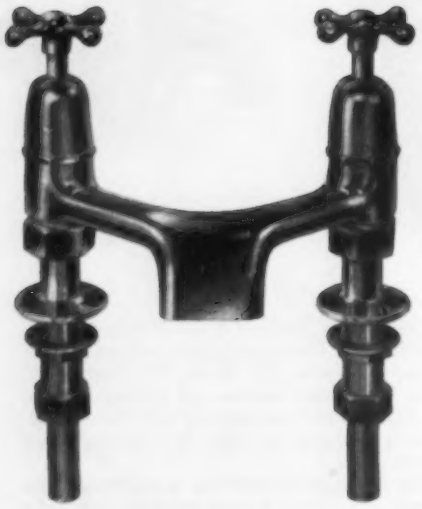
Bath Mixers

1

1. " Seco-Twin " divided flow sink mixer, made by Sanbra Ltd.

2. Basin " Supamix " with pop-up waste and easy washer change. Made by F. H. Bourner & Co. (Engineers) Ltd.

2



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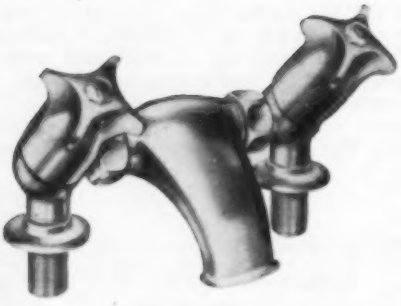


4

3. " Prestex " No. BS.504 bath mixer to B.S.1010 in C.P., made by Peglers Ltd.

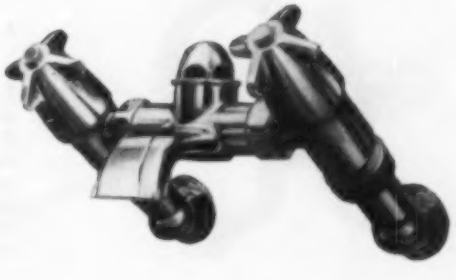
4. " Easilyne " Bath mixer No. 5310ELM, made by Sanbra Ltd.

5

5. No Y.9410 Bath mixer as supplied by Gardiner Sons & Co. Ltd.

MIXER TAPS (Baths—Sinks)

Supplier	Designs Stocked or Made	Nominal Size		Price Range	Remarks
		Min.	Max.		
ALLIED IRONFOUNDERS LTD.	Many	½"	¾"	53/5 to 133/2 per set	Catalogue available
ASHLEY BRANDON (Kensington) LTD. ...	Many	¾"	¾"	On application	Catalogue available
BAXENDALE & CO. LTD.	6	½"	¾"	102/- to 215/-	Can be supplied with or without spray fitting. Catalogue available
HENRY BISSEKER LTD.	2	½"	¾"	On application	½" pillar for sinks with swivel nose. ¾" pillar for baths, with adjustable centres. Catalogue available. Wholesale only
F. H. BOURNER & CO. LTD.	8	—	—	94/- to 188/-	Best seller: "Supamix" Bath Set. The range is designed to give uniformity on bath, basin and sink. The one bath mixer is universal for wall, bib or pillar fitting with 3" to 11" adjustment for centres. Catalogue available
BROAD & CO. LTD.	12	½"	¾"	126/- to 240/-	Best seller No. 129. Catalogue available
BYROM FOUNDRY & ENGINEERING CO. LTD.	3	½"	½"	On application	Catalogue available
CAKEBREAD, ROBEY & CO. LTD.	8	½"	¾"	54/6 to 217/6	Several luxury type models stocked and many with dual waterways. Catalogue available
CLARK, HUNT & CO. LTD.	3	½"	¾"	On application	Catalogue in course of preparation
WILLIAM DIBBEN & SONS LTD.	15	½"	¾"	64/- to 265/-	Best sellers: P406 and P390. Various patterns, many of modern design, are kept in stock
B. FINCH & CO. LTD.	8	½"	¾"	On application	Catalogue available
J. S. & F. FOLKARD LTD.	30	½"	¾"	52/6 to 170/-	Best seller: "Twinstream." Complete 100% segregation of water supplies, cold may be connected to mains pressure—approved by M.W.B. and many other authorities. Catalogue available
A. D. FOULKES LTD.	Many	½"	¾"	85/- to 160/-	Supplied in C.P.
W. N. FROY & SONS LTD.	8	½"	½"	On application	Best seller: "Biflo" mixer (Froy No. S.2338). The "Aquaflo" mixer is specially designed to meet M.W.B. requirements. Catalogue available
GARDINER SONS & CO. LTD.	6	½"	¾"	72/6 to 322/3	Best sellers: Y.8936 Sinkmixer and Y.9410 Bathmixer. Y.6309 combined bath supply and shower fitting. Y.9412 Bath fitting with hand spray attachment. Catalogue will shortly be available
GIBBS & DANDY LTD.	5	½"	¾"	On application	—
ALFRED GOSLETT & CO. LTD.	7	½"	¾"	½" 67/6 to 110/- ¾" 105/- to 300/-	Best sellers: ½" "Biflo" sink mixer, ¾" Bath mixer with hand shower. Dolphin bath mixer fitting also stocked. Catalogue available
HILLS (West Bromwich) LTD.	6	½"	¾"	90/- to 155/9	Leaflet available
KING & CO. LTD.	Many	All sizes	All sizes	On application	—
JOHN KNOWLES & CO. (London) LTD. ...	Many	All sizes	All sizes	On application	Catalogue available. Specials supplied
FRANK LOVE LTD.	Many	All sizes	All sizes	On application	Catalogue available. Wholesale only
NICHOLLS & CLARKE LTD.	6	½"	¾"	On application	Best seller: No. S.188. Catalogue available. Specials supplied
NORLOND SERVICE (Builders' Merchants) LTD.	12	½"	¾"	66/- to 260/-	Best seller: "Biflo" mixer. Catalogue available
H. R. PAUL & SON LTD.	6	½"	¾"	On application	Specials supplied
PEGLERS LTD.	19	½"	½"	On application	Direct sales confined to Ironmongers and Wholesale Builders' Merchants. Catalogue available showing large and varied selection of fittings
ROWE BROS. & CO. LTD.	9	½"	¾"	57/- to 160/-	Best seller: Sink swivel mixer. Catalogue available
ROWNSON, DREW & CLYDESDALE LTD. ...	Many	All sizes	All sizes	On application	Specials supplied
SANBRA LTD. (incorporating: Conex-Terna Ltd., Sandwell Casting Co., Hot Pressed Products Ltd. and Sanbra (S.A.) (Pty.) Ltd. of S. Africa).	12	½"	¾"	On application	Catalogue available
J. H. SANKEY & SON LTD.	3	½"	¾"	40/- to 88/-	Catalogue available
SHANKS & CO. LTD.	Many	½"	¾"	On application	Catalogue available
STANDARD RANGE & FOUNDRY LTD. ...	Many	½"	¾"	On application	Catalogue available. Specials supplied
TEUTEN-DAVIS BENNETT LTD.	Many	½"	¾"	75/- to 420/-	Specials supplied



Right: "Supamix" universal bath mixer, inside fitting—made by F. H. Bourner & Co. (Engineers) Ltd. The one bath mixer is universal for wall, bib or pillar fitting with 3in to 11in adjustment for centres.

Sink Mixers

1

1. Combination tap "Seco" No. B.S.825 made by Sanbra Ltd. Taps inclined to avoid knocking knuckles. Overarm swivel nozzle. In chromium-plated brass.

2

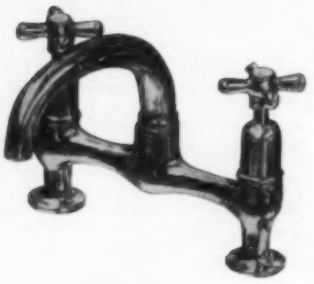
2. "Supamix" domestic and industrial tap No. HF ½in B.S.P. Made by F. H. Bourner & Co. (Engineers) Ltd. in C.P. brass and incorporating easy washer change.

3

3. "Twinway" sink mixer as supplied by Gardiner Sons & Co. Ltd.

4

4. No. B.S. 520 "Prestex" dual flow swivel nozzle sink fitting made by Peglers Ltd. Chromium plated finish (to B.S. 1010).



5

5. Combined supply fitting with swivel nozzle for sinks made by Shanks & Co. Ltd. (No. 9244).

6

6. Mixer tap No. 517 "Prestex" made by Peglers Ltd. in C.P. brass. Patented device gives good mix on equal or unequal pressures. Head set forward for easy control.

7

7. No. S2338A "Aquaflo" sink mixer, supplied by W. N. Froy & Sons Ltd. Hot and cold water flows in separate chambers and does not mix until leaving nozzle. Spring loaded seating takes up play caused by swivelling nozzle.

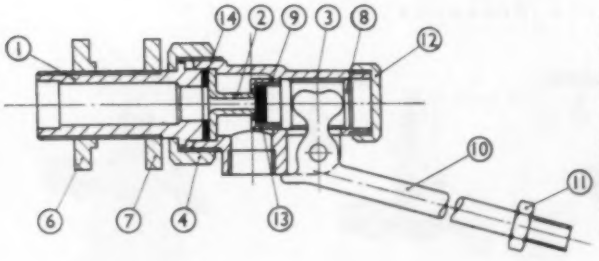
8. "Supamix" domestic and industrial tap No. VI ½in B.S.P. made by F. H. Bourner & Co. (Engineers) Ltd. in C.P. brass. Incorporating easy washer change.

8

STOP VALVES

Supplier	Designs Stocked or Made	Nominal Size Min.	Nominal Size Max.	Price Range	Remarks
ALLIED IRONFOUNDERS LTD.	Many	½"	1"	5/4 to 14/6	Catalogue available.
BAXENDALE & CO. LTD.	12	½"	2"	8/9 to 81/6	Best seller: Type to B.S.1010/53. Catalogue available
HENRY BISSEKER LTD.	15	½"	3"	On application	All types of coupling supplied. Catalogue available. Wholesale only
BROAD & CO. LTD.	12	½"	2"	7/9 to 65/-	—
CAKEBREAD, ROBEY & CO. LTD.	24	½"	2"	From 7/8	Catalogue available
CLARK, HUNT & CO. LTD.	13	½"	2"	On application	Catalogue in course of preparation
WILLIAM DIBBEN & SONS LTD.	21	½"	2"	7/9 to 48/9	Best sellers: Nos. P.277 and P.279
B. FINCH & CO. LTD.	2	½"	2"	On application	Catalogue available.
J. S. & F. FOLKARD LTD.	4	½"	¾"	7/- to 22/6	—
A. D. FOULKES LTD.	Many	½"	¾"	7/- to 10/6	Supplied in brass
W. N. FROY & SONS LTD.	12	⅜"	2"	On application	Best sellers: S1478 and 1482 (B.S.S. pattern). Catalogue available
GARDINER, SONS & CO. LTD.	26	½"	1"	7/8 to 28/1	Best seller: G.7970. Catalogue will shortly be available
GIBBS & DANDY LTD.	2	¾"	2"	On application	—
ALFRED GOSLETT & CO. LTD.	3	½"	1½"	6/6 to 83/-	Best seller: double union type. Catalogue available
HILLS (West Bromwich) LTD.	3	½"	1"	6/9 to 13/3	—
KING & CO. LTD.	Many	All sizes	All sizes	On application	—
JOHN KNOWLES & CO. (London) LTD. ...	Many	All sizes	All sizes	On application	Catalogue available
FRANK LOVE LTD.	Many	All sizes	All sizes	On application	Catalogue available. Wholesale only
NICHOLLS & CLARKE LTD.	24	½"	2"	On application	Best seller: No. S.370. Specials supplied. Catalogue available
NORLOND SERVICE (Builders' Merchants) LTD.	7	½"	2"	½" from 6/6 and ¾" from 10/6	Catalogue available
H. R. PAUL & SON LTD.	6	½"	2"	On application	Specials supplied
PEGLERS LTD.	16	⅜"	2"	On application	Direct sales confined to Ironmongers and Wholesale Builders' Merchants. Catalogue available showing large and varied selection of fittings
ROWE BROS. & CO. LTD.	36	½"	3"	6/7 to 141/9	Best seller: Brass stopcock screwed iron. Catalogue available
ROWNSON, DREW & CLYDESDALE LTD. ...	Many	All sizes	All sizes	On application	Specials supplied
SANBRA LTD. (incorporating: Conex-Terna Ltd., Sandwell Casting Co., Hot Pressed Products Ltd., and Sanbra (S.A.) (Pty.) Ltd. of South Africa)	Many	½"	2"	On application	Catalogue available
J. H. SANKEY & SON LTD.	2	½"	1½"	7/- to 28/-	Best seller: B.S.S. pattern in brass. Catalogue available
STANDARD RANGE & FOUNDRY LTD. ...	Many	½"	2"	On application	Catalogue available. Specials supplied
STEDALL & CO. LTD.	Many	½"	¾"	On application	Catalogue available
TEUTEN-DAVIS BENNETT LTD.	Many	½"	4"	On application	Specials supplied

Ball Valves



1. INLET SHANK
2. SEAT (PHOSPHOR BRONZE)
3. BODY
4. BODY COUPLING NUT
6. SPIGOT BACKNUT (½in size only)
7. FIXED FLANGE BACKNUT
8. PISTON
9. PISTON CAP
10. LEVER
11. LEVER LOCKNUT
12. BODY CAP
13. WASHER PISTON
14. JOINT RING

Left: Brass ball valve to B.S.1212. Two-piece body, allowing dismantling for inspection or servicing without disturbing the connection between ball valve and supply pipe. Renewable seating made of phosphor bronze (B.S.369)—a metal with high anti-corrosion qualities. Locknut on screwed end of lever so that a good connection is made with the float. Stop on other end of lever so that ball valve will not jam when in the fully open position—Peglers Ltd. No. B.S.857HP. Below: Peglers Ltd. No. 911 Scottish pattern ball and stopcock.

HOSE TAPS

Supplier	Designs Stocked or Made	Nominal Size		Price Range	Remarks
		Min.	Max.		
BAXENDALE & CO. LTD.	4	½"	¾"	13/- to 19/9	Best seller: Type to BSS. 1010/53. Catalogue available
HENRY BISSEKER LTD.	4	½"	1"	On application	Can be supplied with schoolboard tops and keys. Catalogue available. Wholesale only.
F. H. BOURNER & CO. LTD.	2	⅜"	½"	18/9 to 39/6	Best seller: " A " Bib H/A. Catalogue available.
BROAD & CO. LTD.	2	½"	¾"	11/6 to 16/9	—
CAKEBREAD, ROBEY & CO. LTD.	5	½"	¾"	10/9 to 30/6	Hose union draw-off cocks and plugs stocked. Catalogue available
CLARK, HUNT & CO. LTD.	2	½"	¾"	On application	Catalogue in course of preparation
WILLIAM DIBBEN & SONS LTD.	3	½"	1"	11/- to 20/-	Best seller No. P. 220
B. FINCH & CO. LTD.	1	½"	¾"	On application	Catalogue available
A. D. FOULKES LTD.	Many	½"	¾"	10/3 to 15/-	Supplied in brass
W. N. FROY & SONS LTD.	2	½"	1¼"	On application	Best seller: No. S.1469 (crutch head pattern). Catalogue available
GARDINER SONS & CO. LTD.	2	½"	¾"	12/- to 21/6	Best seller: G.7954. No. G.7602—½" Hose adaptor available for use with G.7600 Supatap. Catalogue will shortly be produced.
GIBBS & DANDY LTD.	2	⅜"	¾"	On application	—
ALFRED GOSLETT & CO. LTD.	2	½"	¾"	½"—9/9 to 14/9 ¾"—14/9 to 15/3	Catalogue available
HILLS (West Bromwich) LTD.	1	½"	½"	9/3 to 9/9	—
KING & CO. LTD.	Many	All sizes	All sizes	On application	—
JOHN KNOWLES & CO (London) LTD.	Many	All sizes	All sizes	On application	Catalogue available. Specials supplied
FRANK LOVE LTD.	Many	All sizes	All sizes	On application	Catalogue available. Wholesale only.
NICHOLLS & CLARKE LTD.	3	½"	1"	On application	Catalogue available
NORLOND SERVICE (Builders' Merchants) LTD.	2	½"	¾"	On application	Catalogue available
H. R. PAUL & SON LTD.	4	½"	1"	On application	Specials supplied
PEGLERS LTD.	2	½"	1"	On application	Direct sales confined to Ironmongers and Builders' Merchants. Catalogue available showing large and varied selection of fittings
ROWE BROS. & CO. LTD.	4	½"	¾"	9/10 to 19/8	Best seller: Brass hose union bibcock. Catalogue available
ROWNSON, DREW & CLYDESDALE LTD.	Many	All sizes	All sizes	On application	Specials supplied
SANBRA LTD. (incorporating: Conex-Terna Ltd., Sandwell Casting Co., Hot Pressed Products Ltd. and Sanbra (S.A.) (Pty.) Ltd., of South Africa).	2	½"	¾"	On application	Catalogue available
J. H. SANKEY & SON LTD.	1	½"	½"	9/9	Catalogue available
SHANKS & CO. LTD.	Many	All sizes	All sizes	On application	Catalogue available
STANDARD RANGE & FOUNDRY LTD.	Many	½"	1"	On application	Catalogue available. Specials supplied
STEDALL & CO. LTD.	Many	½"	¾"	On application	Catalogue available
TEUTEN-DAVIS BENNETT LTD.	Many	All sizes	All sizes	On application	Specials supplied

Some Typical High and Low Pressure Bibcocks

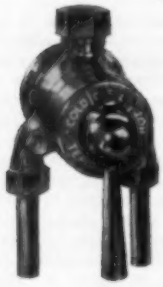
Five bibcocks as supplied by William Dibben & Sons Ltd.

1. *No. P217/8 high pressure, screw down, crutch head—medium or B.S.S. ½in, ¾in or 1in polished brass or C.P.* **2.** *No. P221/2 hose union bibs—medium or B.S.S. ½in, ¾in or 1in polished brass.* **3.** *No. P223/4 hose union bibs, schoolboard pattern with ferrule guard and loose key—medium or B.S.S. ½in and ¾in polished brass.* **4.** *No. P219/20 schoolboard pattern with ferrule guard and loose key—medium or B.S.S. ½in and ¾in polished brass.* **5.** *No. P225 plug bibcock, low pressure, tee head ½in, ⅝in, ¾in and 1in polished brass.*

Miscellaneous

1. *" Prestex " No. 512 Shower mixing valve by Peglers Ltd. Chromium plated with red indicator plate. All fixing screws are concealed.* **2.** *" Rothercraft " ½in C.P. Easyclean hot and cold wrist or lever action combined fitting with anti-splash outlet. Made by Gummers Ltd. from cast brass and copper tube.* **3** *and* **4.** *" Twinseal " ½in bib tap in polished brass, designed by J. Moores & Son (Engineers) Ltd. and now made by Byrom Foundry & Engineering Co. Ltd. The twin seals slide up and down the polished cylinder totally cutting off supply before the tap has been turned to the full extent.* **5.** *" Rothercraft " ½in C.P. wrist or elbow action Hospital bib tap No. R202/48, made by Gummers Ltd. Made of cast brass with quick-turning spindle.* **6.** *½in Pillar valve No. TDB.057 as supplied by Teuten-Davis Bennett Ltd. C.P. finish, suitable for hospitals. 5½in nose centre, 3in screwed tail.* **7.** *½in C.P. raised action, quarter turn bibcock, with elbow. Wall back plate for exposed supply. Projection 5¾in or 7in (¾in size). As supplied by Teuten-Davis Bennett Ltd. (No. TDB.5211).* **8.** *" Hiflo " sink tap No. 140, made by Barking Brassware Co. Ltd. Head inclined at an angle of 45° to the spout gives clear working area above sink. Buckets may be lifted in or out easily. C.P. finish.*

1



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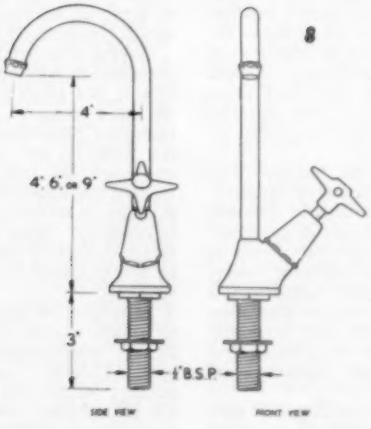

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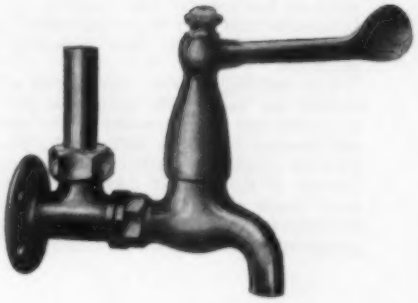


RESEARCH ON THE ECONOMICS OF BUILDING OPERATIONS

A paper read at the D.S.I.R. Working Conference on Research and Industrial Productivity by Dr. F. M. LEA, C.B.E., Director of Building Research, D.S.I.R.

I BELIEVE it is common for every industry to think that it is exceptional in the nature of its problems and the complexity of its organization. However fallacious that may be, I must nevertheless start by pointing out that the problems of the building industry are at least different in a number of ways from those of the manufacturing industry. In the latter, the functions of design, manufacture and assembly are usually carried out by a single organization or, at any rate, by a group of closely associated companies. In building, on the other hand, the normal method of competitive tendering for jobs means that the whole of the design work is completed by the architect on behalf of the client before the tendering firms are brought into the picture. There is thus little opportunity for the contractor's experience of production methods to be brought to bear on the design. Possible methods of securing closer collaboration between architects and contractors are now receiving the attention they merit and various alternative arrangements are being tried. It must, however, be recognized that the general adoption of any substantially changed procedures would involve some radical alterations in the present relationship between the professions and the industry and also in tendering methods.

A substantial part of the cost of building must remain outside the hands of the architect or the contractor, since, in the case of house building, for example, between 50 and 60 per cent of the price is represented by materials, the labour costs in erection amounting to 30 to 40 per cent, and overheads and profits 10 to 15 per cent.

Another feature of the building industry which frequently causes comment is the very wide range of size of firms involved and, particularly, the large proportion of small firms. There are about 120,000 firms in the Building and Civil Engineering Industry, but of these more than one-third are single operatives registered as one-man businesses and a further 40 per cent employ less than five operatives. At the other end of the scale there are large contractors employing over 500 operatives. Although they only number about 150, they employ about 15 per cent of the operatives. One reason for this structure lies, of course, in the wide variety of work which the industry undertakes, ranging from very large new constructional projects to the smallest items of maintenance. Thus many of the small firms are either specialist sub-contractors or engaged in repair work and minor alterations. It is perhaps interesting to note here that the relative proportion of large and small firms in the U.S.A. is broadly similar to that in this country. There is, in fact, much work in the industry than can be more effectively undertaken by small firms.

This wide diversity in the structure of the industry presents special problems from the point of view of research. The requirements of the larger firms are clearly different from those of the smaller ones and the method of presentation of results and of promoting their application needs to differ for firms of different size engaged on different classes of work. The larger firms can, of course, carry out a certain amount of research and development on their own account, but for the vast majority of firms this is clearly impossible and they must inevitably look to some central body for help with their technical and organizational problems.

The building industry shares with shipbuilding and agriculture the unenviable distinction that much of its work is carried out fully exposed to the weather. In addition, the product has to be built at the place at which it is to be used under site conditions by no means fully under the control of the builder. In the course of building men must move round the work instead of the work being brought to the men. On a site at any particular time, groups of operatives will be working in different trades and on different operations. Effort is dispersed over a wide area, and, indeed, were it not for the fact that most of the work is traditional and the operatives are, therefore, familiar with the technical problems which the work presents, such a dispersal of effort would lead to exceptional supervisory problems. This dispersal gives the building industry an added interest in incentive payments as an alternative to close supervision as a means of increasing output.

The structure of the building industry, with its separation of the design and production functions, adds to the complications attendant on the introduction of new methods, particularly when these involve substantial change in the kind of plant required and in the methods of organization of site work. A further problem in the introduction of expensive plant is that the degree of capitalization in the industry is low. The knowledge of real costs, too, is usually very limited and the method of accounting generally employed provides no information on the costs of particular elements of a construction; it is usual, in fact, only to record labour costs in the individual trades. All too frequently the methods adopted for site recording and costing of specific operations are such as to make it extremely difficult to determine at any particular stage whether the work is being carried out at a profit or loss.

There is hardly need to emphasize the importance of the industry in the national economy; in 1953 building and civil engineering works were carried out to the value of about one and three-quarter thousand million pounds, of which about two-thirds was new work and the remainder alterations, repairs and maintenance. In fact, the industry produces between 6 and 7 per cent of the gross national product and new constructions account for nearly 50 per cent of the country's annual fixed capital investment.

The Building Research Station, as the government research organization under the Department of Scientific and Industrial Research, is concerned with research in the national interest over the broad field of building. One part of its work is directed to the operational problems that face the builder. Here experience has shown that the Station can play a useful part in appraising the likely value of new, or alternative, methods and processes in a way which the industry itself would find difficult.

Having thus set the background scene against which the problems facing the industry must be viewed, I would like now to deal more specifically with some of the items which we have recently been investigating. I shall take my examples particularly from house-building since much of our work on the study of building processes, productivity and costs has been related to this class of building. In view of the importance and scale of the house-building programme in recent years I need hardly excuse this position. In addition, there is a certain uniformity in the product which facilitates study and enables results to be generalized in a way which is more difficult for some other types of building.

In studies of this kind, one of the first requirements is to obtain information to determine, in a general way, the factors which could contribute to increased output and reduced costs. For this purpose we have carried out surveys on productivity and for these have obtained, from the contractors' own records, data on the labour expenditure in each trade—that is bricklayer, carpenter and floor layer, etc.—required to build a typical local authority house. In our most recent survey data were collected from 177 contracts covering nearly 5,000 houses. As well as information on labour expenditure and costs, particulars were obtained of the nature and amount of incentive payments, the use of mechanical plant, cost of materials and so on. Similar information was also obtained from the sub-

contractors who were responsible for some part of the work.

An outstanding feature of the results was the wide range of variation in labour required to build what were substantially similar houses. The best contracts required only about 1,500 and the worst over 4,500 man hours per house. It is useful also to note that the variation between houses on the same contract was only about one-quarter, and that between different contracts carried out by the same contractor about one-half, of the total variation over all the contracts. These figures emphasize that much of the difference between contracts resided, not in site conditions or the specification of the houses, but in those factors which are directly related to a particular firm and its organizational methods. Such factors include the payment of incentives, the size of contract, and the general quality of the organization of the firm.

One feature of the results was a general tendency to high productivity where there is close relationship between financial gain and performance. For the main contractors, the man hours on contracts with target bonus schemes—in which payment is directly related to output—were consistently lower, by about 15 per cent on average, than on contracts on which only the standard rate was paid. Extra payments taking the form of a direct addition to the basic wage rate did not lead to a corresponding improvement in productivity. Similarly where contracts were under the supervision of a working principal who directly controlled the work of his operatives there was, in the main trades, a reduction in man hours by about 15 per cent. In this case the higher productivity can be attributed partly to the direct incentive to the principal but here, too, the stimulus to the operatives and the effect of direct supervision of the work are important. In fact, to some extent, the payment of incentives is a means whereby the large contractor achieves the same results as the small contractor does by direct supervision. The small contractor is, of course, only capable of undertaking efficiently the smaller contracts. The fact that the man hours taken on sub-contracted work was found to be about 20 per cent less on average than that required by the main contractors for similar work is another instance of the effect of improved supervision.

The size of contract undertaken depends on the size of the firm, but it is notable that only for the trade of bricklaying was any effect of size of contract on productivity found; here the man hours required fell with increasing size of contract. This result is explicable in terms of site organization in that the bricklayer is the dominant trade and his progress is unaffected by subsequent work whereas all other trades are, to some extent, subject to the effects of hold-ups and delays in preceding operations. This emphasizes the important part that site organization can play in smoothing out these delays and in phasing the work of the different trades. To summarize, therefore, these surveys show the importance of three main factors—incentives, site organization and supervision. The value of studies of this type is not that they produce new conceptions, but that they attach some quantitative estimate to particular factors as a guide to the industry for action. They also help us in deciding the best direction to develop future studies.

I would like to turn now to the question of mechanization. Here, it may be useful to outline the general pattern which our work has followed. First, by an investigation of building operations carried out in a traditional manner we have found the likely places at which mechanical plant can make a useful contribution. Suitable plant then has to be found or its development encouraged and in some cases, even, we have found it necessary to develop it ourselves. The plant than has to be tried under normal site conditions and finally an economic appraisal of its value must be made. To do this it is necessary to have information on the likely utilization, maintenance costs and life of the plant and we have obtained data relating to these factors for existing plant from the industry at large. The implication of taxation and the firm's accounting methods in amortizing the costs of plant have also to be considered.

My first example is one which has attracted a good deal of interest in the industry. From a study of the handling of materials in traditional house-building we concluded that a machine capable of transporting materials both vertically and horizontally was the prime requirement and for this purpose the Continental type of tower crane appeared very suitable. These had been used for years for multi-storey building on the Continent but there was little or no experience of their use in two-storey work. In Great Britain they were unknown. We therefore obtained a crane of this type in 1951 and made a mechanical investigation of its suitability and use. As an example of the by-ways into which work of this sort may lead I may mention that we ran, immediately, into problems of the insurance of such cranes in this country. Fortunately these were ultimately overcome by the preparation of a suitable British Standard, for which the Station provided much of the information. We started our site investigation with a pilot trial which amply demonstrated the potentialities of this type of machine and also the important part which the proper programming and preplanning of the work played in its successful application. Following this we were able to arrange for a production run involving the building of 32 houses; the results showed that the crane and the improved organization which its use stimulated had reduced the man hours required to build a house to about 1,800, about 1,000 less than on the average had formerly been taken. There was too, a substantial reduction in building time and, in consequence, the reduction in costs was estimated at about £100 per house.

In another case we collaborated with a contractor who was using a tower crane to build three-storey blocks of shops with maisonettes over them. It was fortunate that, at the same time, he was building a second block by normal methods. The cost of the crane-assisted block was £160 per unit of shop and maisonette less than that of the other. This particular contractor now owns five tower cranes and he estimates that their use has reduced his total costs over a very considerable volume of work by about 3 per cent corresponding, since material costs from the larger proportion of total costs, to about a 10 per cent reduction in labour and plant costs; a substantial achievement.

There are now, three years after the start of this work, about 200 tower cranes in use in this country and five firms manufacturing them.

Another part of housing work where a study of traditional processes showed possibilities for mechanization was for placing concrete in foundations. Here a study showed how a bad balance between the gangs doing the mixing and the placing of the concrete could seriously affect output, and enabled us to indicate to the industry the requirements for maximum efficiency when using wheelbarrows for transport. At the same time we were able to show the economic advantage to be gained from the use of larger power-driven barrows or dumpers which could take the whole of the output of the size of mixer normally employed. This type of powered barrow is now, in fact, very widely used for this and other transport on building sites and has been entirely developed over the last five years.

As an example of a somewhat different type of problem I would like to refer to the question of maintenance. Here our source of information was the records kept by local authorities. Unfortunately in most cases these records only showed the total amount expended over the whole estates. While they are useful as giving a general picture of the total amounts spent they were not very useful for our main purpose which was to allocate the expenditure per house among its various items in order to determine which were most important and might repay further study or alterations of design in order to reduce them.

Fortunately we found a few authorities who kept their data separately for each house and from this we have been able to make an assessment of the various items of expenditure. There is a certain difference between authorities in dealing with internal decorations; some authorities carry out this work themselves, others may leave it entirely to the tenants. Excluding internal decorations, therefore, we found that the average expenditure on maintenance was about £8 per house per year. The capitalized value of this at current interest rates is about £175. This expenditure is, however, spread over a very large number of items and their relative importance can best be judged by comparing the ratio of the capitalized maintenance expenditure to the first cost of the items concerned. For most things this ratio is about

10 per cent to 20 per cent, the most expensive being fireplaces and grates (41 per cent) and external painting (80 per cent). The capital value of the maintenance cost of external painting is on average £55 and the size of this expenditure in relation to the cost of the materials protected suggests that there may be justification for recommending the use of more expensive materials, if thereby the incidence of painting can be reduced.

As my last example I should like to take the question of alternative methods of house design. As you will have seen about the countryside, there has been no lack of ideas on alternative ways of building houses and, in fact, many hundreds of designs have been sponsored since the war. Most of these houses have proved more expensive than traditional ones, but there are many features which contribute to this and it is not possible from the normal builder's records to determine which components are expensive and which are cheaper—or at any rate, potentially cheaper if used on a sufficient scale. To do this it is necessary to know the costs in labour and materials of each component in the house; walls, floor, roof, partitions, plumbing, electrical and so on. In order to obtain such information as a basis for assessment of the part which factory-made components can play in housebuilding we are, at the moment, carrying out a full-scale experiment. We had first to design a range of house types incorporating as many factory-made features as possible, each house having the same general plan arrangement. We included the various components in four different house designs, one of these, of course, being a traditional one for comparison. In collaboration with various local authorities we then arranged for these houses to be built in groups of about 30 of each type on a number of different sites. The work is at present in progress and we are observing labour expenditure for the various components and building materials costs, as well as studying the inter-relation of the factory processes by which certain of the elements are produced and the site operations in which they are used. We shall, in all, get some 400 houses built in order to obtain data on a scale sufficient to form estimates of relative costs.

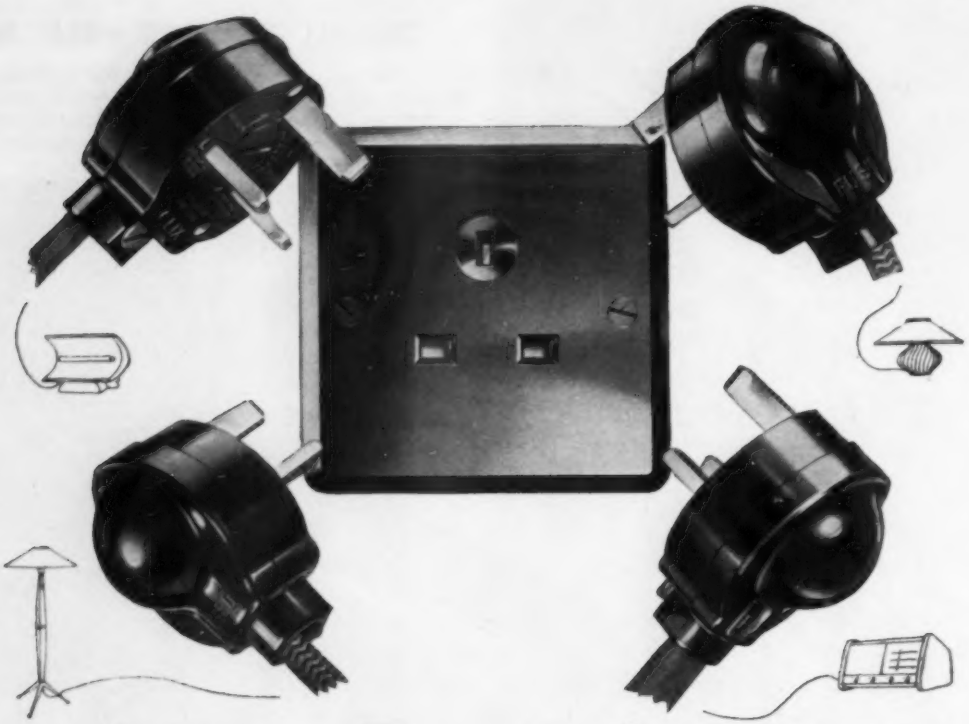
These examples will, I hope, give some indication of the types of problem that are being tackled and the way in which they are helping to provide the building industry with economic data on its operation.

* * *

The illustrations on the right show one of the recently completed buildings in the old part of Stockholm. Apparently there was a great cry in Swedish architectural circles when it was decided that it was necessary to take down some of the old buildings to allow room for expansion of one of the government offices. The "new" building, consisting of offices grouped together around a circular colonnaded piazza was then built; great care being taken to make all the details an exact replica of the traditional style. Once more a great cry went up and the Swedish architects of all schools are divided as to whether this is the right solution to this very difficult problem. There is no doubt, however, that the craftsmanship and general execution of the work is perfect. The structure is brick with concrete columns forming the arcade. The reveals are a pleasant grey coloured limestone and the raised panels are carried out in a rough plaster resembling "Tyrolean" finish. The first floor is cream stucco with wood windows, the roof and dormer cheeks are copper.

Photos and note by N. WESTWOOD, F.R.I.B.A.

GOVERNMENT BUILDING ANNEXE STOCKHOLM; ARCHITECT: A. SCHMULENSEE



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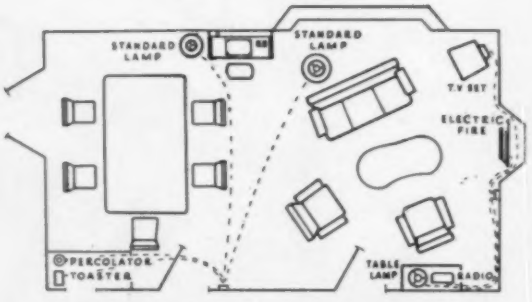
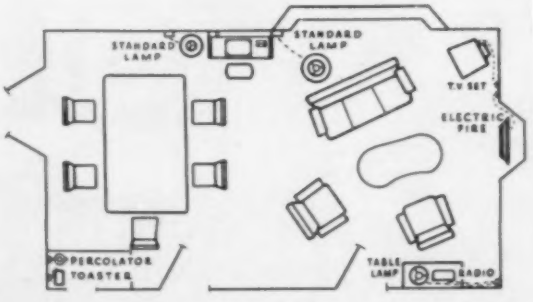


Insufficient socket outlets wrongly placed. Note the long trailing flexibles running dangerously across doorways and "traffic ways".



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THE LAW OF BUILDING CONTRACTS

V. Time and Delay Clauses

BY GILES BEST

WHEN two persons enter into a contract they are only bound by the terms which are agreed expressly or implied between them. If the time for completion of the contract is not discussed, and if nothing is understood between the parties about the speed with which the work is to be done, then time is not considered to be the essence of the contract. In other words, it is not a condition of the contract which is considered of vital importance by the parties. To take an example, suppose an employer agrees with a builder that the builder shall build a house for him. Nothing is said at the time the contract is entered into about the date for completion of any stage of the work. There are not even any promises such as "It will be ready for you by the summer." In such a case the only obligation on the builder is to complete the house within a reasonable time. What is a reasonable time? The answer must be that, like the "reasonable man," the definition must vary with the circumstances of each case, and that the person complaining of the delay would have to prove that it was unreasonable.

It is obvious, therefore, that it is always in the employer's interest to make it clear from the start that the contract must be performed within a certain time. If he does so, and if the stipulation as to time is expressed as a condition of the contract, then he may have the right to terminate the contract if the condition is not fulfilled. If the contract is also expressed to be an entire contract, then he is in a very strong position.

If no promise as to the time of completion is made at the time the contract is entered into, it is still possible for a time for completion to be agreed subsequently between the parties. If the employer, after completion of the work appears to have been unreasonably delayed, gives notice to the builder that he must complete by a certain date, and the builder accepts the notice, and agrees to comply with its terms, the parties are in much the same position as if time had originally been agreed to be the essence of the contract. But no mere notice given by one side, but not agreed to by the other, can of itself make time of the essence of the contract.

The R.I.B.A. form of contract is phrased so that time is of the essence of the contract. Clause 16 expressly states that possession of the site is to be given to the contractor by the date for possession stated in the appendix, and that the work is to be completed by the date for completion stated in the appendix. In addition, Clause 19(a)(2) gives the employer the right to terminate the contractor's employment if he fails to proceed with the work with reasonable diligence; but this sub-clause does no more than stress the implied condition that the work shall be done with the speed and skill reasonable in the circumstances. Clause 28 of the c.c.c./wks/1 Government contract also makes time of the essence of the contract.

Once a date for completion has been agreed between the parties, it is not open to either of them to say that it is unreasonable and should be varied; but it is usual to insert into the contract a clause giving the architect the right and the duty to extend the time for completion under certain circumstances. In the R.I.B.A. form of contract this is, of course, clause 18; in the c.c.c./wks/1 contract clause 28 deals not only with the date for completion but also with extensions of time. In brief paraphrase, the effect of each of these clauses is to give the architect power to make "a fair and reasonable extension" of time for completion, if delay in completion of the works has been caused by circumstances outside the control of the contractor. Thus exceptional weather, labour troubles, or delay on the part of other contractors or sub-contractors are outside the control of the contractor and give him the right to an extension of time. Also, if delay is caused by the actions or instructions of the employer or architect, the contractor is entitled to an extension. The causes of delay, and the question whether the contractor is entitled to an extension, are matters to be decided by the architect, but, of course, his decisions are subject to review, by arbitration, in the event of a dispute. If any event occurs which may give the contractor the right to claim an extension of time, he must give the architect notice in writing at once, but he must also continue to do his best to perform the contract by the date for completion. It is, of course, not open to the contractor to claim an extension of time from the happening of an event which was, or should have been, foreseen by him at the time the contract was made, and was, or should have been, allowed for in his calculations in regard to the time for completion.

In neither the R.I.B.A. nor the c.c.c./wks/1 contracts is any time limit prescribed within which the extension of time must be granted or refused. Indeed there is no provision that it should be granted in writing, though it has to be applied for in writing; but presumably the point is covered in the R.I.B.A. contract by the provisions of Clause 1 in regard to architect's instructions. In several cases the courts have had to consider whether, under this and equivalent clauses, an architect has power to grant an extension of time retrospectively. In the most recent case,* the Court of Appeal held that, under the R.I.B.A. contract, it was possible for an architect to grant a valid extension of time ten months after the original date of completion had expired, and nearly three months after the completed works had been handed over by the contractor. In some of the earlier cases retrospective extensions of this sort had been declared invalid, but in these cases the original cause of the delay was the employer's fault, and not, as here, entirely the contractor's fault. It does appear, however, that if the employer acts in such a way as to make it seem that he has waived the stipulation that the work should be finished by the date for completion (for instance by the grant of an unconditional certificate for the payment of part of the retention fund), then his right to grant an extension of time can no longer be validly exercised.

Failure on the part of the contractor to complete by the date for completion, may give the employer the right to terminate his employment. In addition the contractor is usually liable to pay damages for non completion for every day or week in which the works remain unfinished after the date for completion. This is dealt with in Clause 17 of the R.I.B.A. contract and Clause 29 of the c.c.c./wks/1 contract. Both these clauses are to the same effect, and both refer to a rate of liquidated damages set out in the appendix to each contract, which is said to be based on a calculation of the actual loss which will accrue to the employer. It is important that this last statement should be correct, because otherwise clauses of this sort are open to criticism. The reason for this is that the courts will not enforce any clause in a contract which is intended to act *in terrorem*, and which imposes a fixed and heavy financial penalty for every breach of contract whatever its relative importance to the parties. If a clause of this sort fixes a sum of money as the damages payable for each day's delay, the employer must be able to prove that the sum fixed was calculated as being likely to correspond to the actual loss he would suffer. If he were unable to prove this, the court, in the event of a dispute, might refuse to order the payment of damages at the rate set out in the contract, and might scale down the sum to a figure based on the actual loss that could be proved. But in order for such a decision to be taken the unreasonable and penal nature of the damages would have to be proved.

* *Amalgamated Building Contractors Ltd. v. Waltham Holy Cross U.D.C.* (1952) 2 AER 452.

ANNUAL GENERAL MEETING

Mr. Harvey G. Frost, O.B.E.

The A.G.M. of the National Federation of Building Trades Employers was held last week. MR. HARVEY G. FROST, O.B.E., was elected President for 1955, and MR. NIGEL HANNEN was elected Senior Vice-President.

Mr. Nigel Hannen

THE A.G.M. was held, as is the usual practice, on the morning after the annual Ball; it took place at the Victoria Halls on Wednesday, January 26.

The main part of the agenda, the presentation of the seventy-seventh annual report, reflected, in two ways, the state of the Federation to-day. The first, the content of the report itself: a formidable publication running to some seventy pages and containing for the first time a report of the council of the Federation of House Builders and also an annual review of the National Federation of Plastering Contractors. The second and more pungent reflection was the fact that no more than six subjects were discussed by the assembly, and this out of a total of 159 sections. The retiring President, Mr. G. W. Grosvenor, commented at the start of the proceedings that his predecessor had prophesied, subject to the availability of materials and peace within the industry, a good year. This, said Mr. Grosvenor, had been so and he, on similar terms, would say that 1955 would be better. The acceptance of the greater part of the report without comment from those attending the meeting showed a complacency not often found on these occasions.

Mr. Grosvenor also said:—

"I appeal to all members who have not adopted bonusing schemes seriously to consider the possibility of doing so during 1955. Until we solve the problem of linking output—quality as well as quantity—with earnings, all our efforts to improve our efficiency by better training, by better management and by increased mechanization are bound to be handicapped. We must, somehow, remove the anomalous position in which wages increases go to the unworthy as well as to the worthy."

General Review

Building output has continued its notable expansion, and, bearing in mind the return of conditions of almost complete freedom and the steps being taken to ensure still further improvements in building efficiency, the industry is confident that it will be well able to cope with the considerable volume of building work which, subject to certain important considerations, lies ahead.

The number of new houses completed in 1954 is certain substantially to exceed last year's total and will approach the pre-war record. At the same time the figures for industrial building proposals "approved" have risen appreciably, which indicates that a marked increase in actual factory building, coupled with a larger demand for plant and machinery, will occur in 1955. The fact that the expansion of the house-building programme has not taken place at the expense of other types of new building has already disproved any suggestion that a continuance of building licensing is necessary in the public interest.

The growing measure of freedom which the building industry has experienced has been accompanied by a steady improvement in the supply of the basic building materials. No action taken to improve building output can possibly be fully effective if the flow of building materials to individual building sites is inadequate.

It would be unwise, however, to assume that no hazards lie ahead either for the country as a whole or for the building industry. The present combination of full employment, rising production and rising consumption can be maintained only if there is no set-back in our overseas trade and if serious industrial unrest can be avoided.

The important role of the building industry is evident: total output of building and civil engineering work is now approaching £2,000 million annually and the effects of any increase in building productivity or of any reduction in building costs are bound to be transmitted throughout the whole economy. It is noteworthy that building output continues to increase.

Provided costs are maintained at a reasonable level, the outlook for the building and contracting industries for the next few years is promising. The past year has, however, provided further evidence that building costs are at a level which may, sooner or later, result in an appreciable falling-off in the demand. The reduction in the amount of the housing subsidies and the increase in unsubsidized private house-building will inevitably result in a clearer appreciation of economic facts.

Supply of Materials

With demand pressing so closely on production, local and even national shortages of particular materials are likely to occur from time to time and these can have serious effects on building productivity and costs.

Enough bricks are being produced for the current building programme, but supplies in particular localities sometimes fall short of demand; in some parts of the country, moreover, transport problems have persisted.

Cement supplies generally have improved, although so long as any quantity of cement has to be imported to meet demands the position cannot be regarded as entirely satisfactory. A possible cause of future difficulties lies in the fact that concrete consists mainly of sand and gravel, and fears have been expressed that, owing to the reluctance of some planning authorities to permit new excavations, the output of sand and gravel may not keep pace with the demand.

Early in the year supplies of building steel showed considerable improvement, but in more recent months the position has deteriorated. In the case of ferro-concrete bars, for example, it is difficult to find a supplier who will

[Continued on page 165

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quote for delivery in less than four or five months and difficulties are occurring also with regard to structural steel.

Following the re-opening of the Australian and New Zealand markets, sanitary earthenware supplies have frequently been difficult. Asbestos cement products have also been in short supply, although it is understood that production is already rising to meet the increased orders.

Builders Blame Materials

Federation representatives pointed out that the building industry was frequently criticized for the high cost of building, although about 60 per cent of their costs consisted of the cost of materials and were, therefore, beyond the direct control of the builder. Representatives of the manufacturers stated that building material prices had, in fact, remained reasonably steady over the last two years and had certainly not risen during that period by the same proportion as the raw materials of other major industries.

Builders' Advisory Service

It will be one of the functions of the Service to collect and to make information available to the industry. Discussions, conferences and short courses may also be arranged. When the Service is established charges will be made to the firms using it at rates that will enable the Service to be self-supporting.

Building Firms Co-operate with Building Research Station

At a meeting held recently at the Building Research Station the Federation's Building Research and Technical Information Committee considered reports from the Officers of the Station in regard to the first two experiments relating to (1) air-entrained mortars for external rendering and for undercoats in interior plastering, and (2) zinc oxychloride treatment for walls infected with dry rot, and had a preliminary discussion of the next experiment to be undertaken which will relate to methods of preventing deterioration of domestic flues. The good response to the call for volunteers to carry out the first two tests showed that a large number of members are interested in new methods and techniques.

Labour Relations with the Employers

The general wages position brought the first signs of animation from an apparently comatose gathering. The general opinion was that the small differential between the wages of craftsmen and labourers seriously reduced the incentive for boys to learn a craft.

Discussions on various subjects with the Executive of the Operatives' Federation have continued. In regard to labour productivity N.F.B.T.E. representatives have stressed the need for further efforts on both sides to extend the working of incentives. The position has, however, been complicated by the Operatives' strong objection to labour-only sub-contracting. The Council has maintained the view that it must safeguard the position of genuine labour-only sub-contractors in view of the contribution they make to higher productivity.

In some areas there has been excessive competition for labour, a position which is aggravated by the counter-attractions of factories in the large engineering centres. A real contribution to the welfare of all in the industry can be made at this time, by employers who, having ensured that the management of their jobs is efficient, take firm steps to eliminate slackness on the part of their workers.

Standard Form of Contract

Attention is again called to the recommendation made to local authorities by the Ministry of Housing and Local Government in April, 1952, in regard to the use of the Standard Form of Contract. In their circular (No. 42/52) the Ministry pointed out that the practice of some authorities of altering the Standard Form and the insertion of contrary or conflicting provisions in the bills of quantities or other contract documents were undesirable in that they were liable to lead to reduced competition or to higher tenders. The Council of the Federation fully endorses this recommendation.

The Contracts Committee have reviewed the position of the contractor with respect to defects which may arise through faulty design. The Federation has been advised by Counsel that the contractor is not liable to the employer under that contract for such defects.

Retrograde Step in Building Industry

A Commission which considered a dispute relative to the sub-letting of pointing of brickwork found that the employment of a separate sub-contractor for this work was not normal practice in the industry and should not be encouraged. A delegate raised the point that this practice was one way to get costs down and suggested the removal of the paragraph from the report.

Education and Training

The general objects of the educational policy of the Federation are to ensure that the skilled labour force of the industry is both large enough and sufficiently skilled for the volume and class of work to be carried out. With the object of stimulating the recruitment of suitable boys the Federation has prepared a brochure—"Careers in the Building Industry." This brochure shows parents, boys, careers masters and youth employment officers the training available in the industry and the good prospects for those who are keen. It is hoped that wide use will be made of it as an aid to recruitment.

Adult Training

In the last Annual Report it was stated that the Federation's Education and Training Committee had drawn up a draft scheme of adult training which was designed to provide training, under suitable safeguards, for selected adults. This draft scheme had been approved by the Federation's Council and was to be discussed with the Operatives' organization.

At a joint meeting of the Executives of the Employers' and Operatives Federations later in the year, the representatives of the Operatives reaffirmed their opposition in principle to the reintroduction of any systematic training of adults, whether under the control of the Government or of the industry. They said, however, that they would be willing to submit the proposals to a policy conference of their own Federation if the Employers would consider a revision of certain features. After some revision in the light of the joint discussion, the draft scheme has been re-submitted to the Operatives' Federation.

Foremanship

At the invitation of the Standing Committee for the Training of General Foremen, colleges in London, Bristol, Liverpool and Sheffield are running initial experimental certificate courses in foremanship studies.

Registered House-Builders Design Better than Before the War

A comprehensive review of the housing situation was given in the annual report of the Federation of Registered House-Builders — the house-building section of the National Federation.

Officers of the Federation were invited to discuss with representatives of the Royal Institute of British Architects ways and means of encouraging the more general use of the services of architects in private house-building and also a draft scale of fees for the discussions was fully considered by the Council and General Purposes Committee, who came to the conclution that the adoption of the scale of fees suggested by the R.I.B.A. would not materially assist towards attaining the desired objective, namely the wider use of architects' services.

There has been considerable criticism in some sections of the technical press of the standard of design of privately built houses. While there may be justification for this criticism in some cases, the general level of the design of private enterprise houses is higher than it was before the war and it is a fact that the proportion of such houses which are built to architects' plans is increasing. The Federation is anxious to co-operate with the architects in the encouragement of higher standards of design, but this co-operation will not be fully effective until the members of the profession are able to convince the industry that they can design houses with due regard to economy in construction.

Standards of Construction

The Federation is confident that the answer to critics of the standards of construction in private house-building has been provided in the industry's own registration and certification scheme operated by the National House-Builders Registration Council.

MOSAICS

STRUCTURE
ROOFING
A10/10

This new translucent corrugated sheet by Rilite Improvement Limited of Rilex Works, London Road, Wellingborough, Norchants, is made in two types. Number 309, to match conventional 3in Iron or Aluminium corrugated sheet, is 26in wide with 8 corrugations. Type 311 of similar section is 32in wide and has 10 corrugations; other standard profiles will shortly be available. Manufacturing lengths, 36in to 96in, in increments of 6in weighing about 8oz per sq ft. Nominal thickness is .060in. Ultimate tensile strength is 16,000 lb per sq in. Sheer, 14,500 lb sq in. Known as Rilite Corrugated Sheet the fixing techniques are the same as for conventional asbestos and galvanized iron sheets.

PLANT
TOOLS
E3/36

The new " Nubrex " Economy Lubricator by Ch. J. Neuman Ltd., 445 Brighton Road, South Croydon, Surrey, costs 16 gns. By applying pressure by the pump in the lid 30 to 40 satisfactory greasings at various points on a machine can be carried out without further attention to the container during maintenance. A special feature of this new lubricator is the ingeniously constructed lid of solid steel which can be clipped on to any standard size grease keg of 28 lb or 40 lb capacity with three adjustable clips. A guaranteed pressure of 7,500 lb per sq in is supplied at the booster at the end of the 10-foot reinforced rubber hose.

PLANT
CONCRETING
E8/9

The latest model of the Columbus-Dixon Power Float is now being marketed at home and overseas. Modifications included the possibility of substituting the Power Float plate with other attachments, enabling carborundum stoning and screed preparation. An improved drive belt gives longer wear and reduced maintenance costs, and filters of the oil bath type can be fitted where climatic conditions or dust makes it necessary. Columbus-Dixon Ltd., Capitol Works, Empire Way, Wembley, Middlesex.

PLANT
FACTORY EQUIPMENT
E14/11

British Straddle Carrier Co. Ltd., of 7 Chesterfield Gardens, London, W.1, announce that, following the success of their " Timber Wolf " Straddle Carriers for the timber and allied trades, and the docks, they now have in production at Bourn, Cambridge, the " Steelmaster " Straddle Carrier for the iron, steel and heavy industries. The " Timber Wolf " and the " Steelmaster " are claimed to be the only Straddle Carriers produced in the Sterling Area. The " Steelmaster " is available with eight alternative dimensions of load aperture, and is capable of handling and transporting loads of 40ft or more in length, and up to 10 tons in weight.

* Primarily intended for the conveyance of steel sections, girders, pipes, tubes, bars, boilers, tanks, etc., the " Steelmaster " is equally suitable for billets, ingots, steel plates, sheets, also drums, cable reels, etc., and various " Cube loads " for which special cradles or pallets are available.

INDUSTRIAL NOTES

● Since the beginning of this century Hall Harding, Ltd., manufacturers of drawing office materials and equipment, have maintained a policy of personal contact not only with sales organizations marketing their products, but also with the actual consumers overseas, and periodical trips abroad have been made by various members of the company.

On February 2, Mr. A. W. Bartlett, general manager of the export section, will be leaving London Airport for yet another goodwill tour covering the African continent. Cities and towns to be visited include Lagos, Accra, Johannesburg, Livingstone, Bulawayo, Salisbury, Lusaka, Ndola, Dar-es-Salaam, Nairobi, Entebbe, Kampala, Jinja, Cairo and Nicosia before returning to London on June 3.

● Admiral the Earl Mountbatten of Burma is to open the British Industries Fair at Olympia, London, on May 2. It will be the first official opening of the Fair in its 40 years' history.

The Fair, at which more than 90 industries will be represented, will be held at Olympia and Castle Bromwich from May 2-13. The Queen and the Duke of Edinburgh will visit Olympia on May 10.

● The following gentlemen have been appointed as Chairmen of the various C.M.A. Committees for 1955.

Mr. W. Lewis Smith, a director of the Pirelli-General Cable Works, Ltd., has been appointed Chairman of the Cable Makers Association.

Mr. R. A. Bebb, of Crompton Parkinson, Ltd., has been appointed Chairman of the Mains Cable Manufacturers Association.

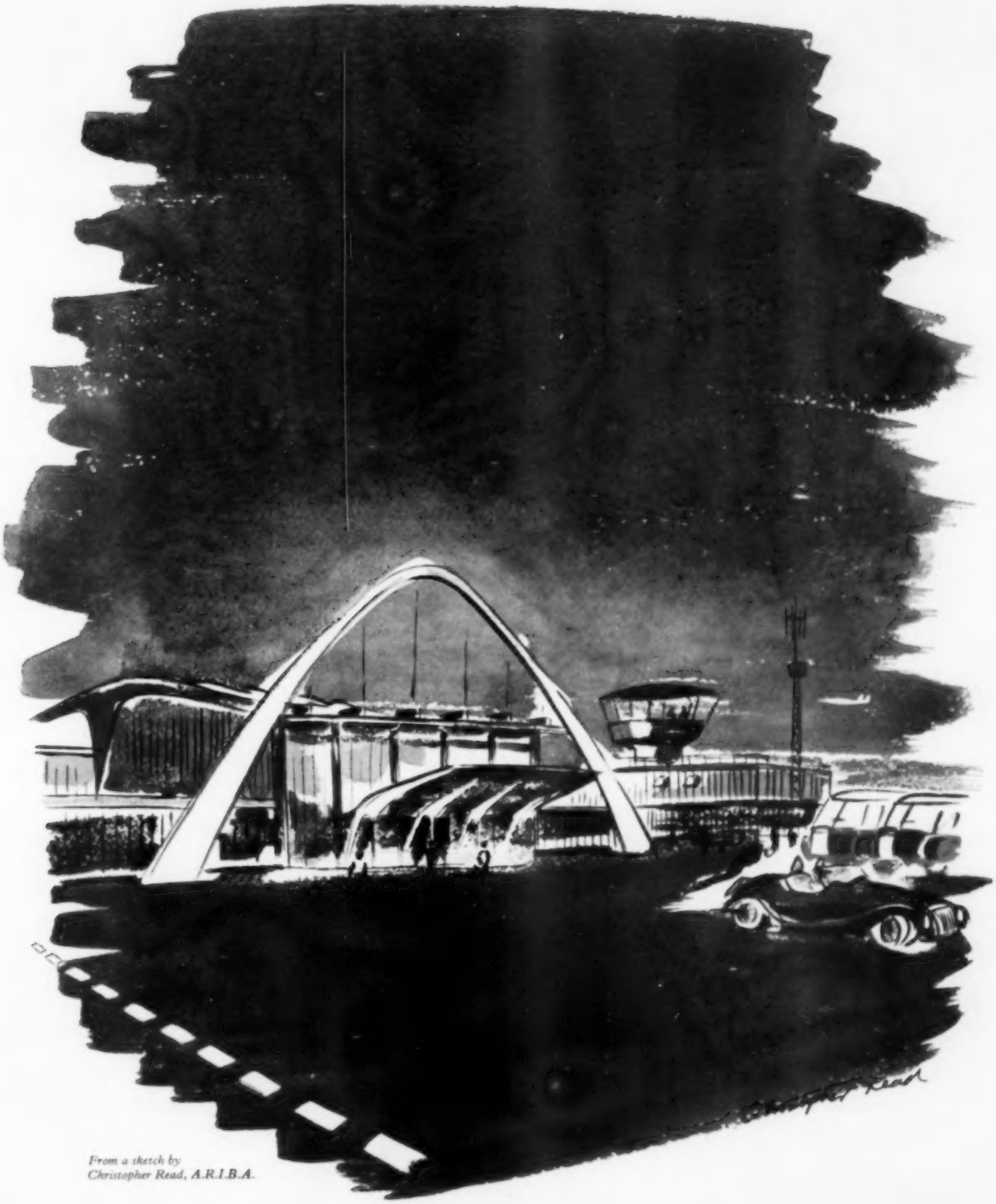
Mr. H. E. Helwig, of Siemens Bros. & Co., Ltd., has been re-elected Chairman of the Mains Cable Manufacturers Association (Super Tension) for the second year.

Mr. H. Lockett, of the St. Helens Cable & Rubber Co., Ltd., has been appointed Chairman of the Overseas Rubber Cable Manufacturers Association.

Mr. H. H. Townsend, a director of the Greengate & Irwell Rubber Co., Ltd., has been appointed Chairman of the Rubber and Thermoplastic Cable Manufacturers Association.

● Mr. N. R. Sharpe, London and Home Counties, Agent for Messrs. Callow & Keppich, Ltd. (Stonite), has moved from 151, Battersea Park Road, London, S.W.8, and his address for all future communications is: 24, Gunterstone Road, London, W.14. Tel. Fulham 1475.

● West Coast Development Co., Ltd., of 605, Ford Building, Vancouver, British Columbia, has been incorporated for the express purpose of importing to Canada various prefabricated houses, house furnishings, kitchen appliances and various other items required to build a complete house. They would be very happy to receive various trade literature and offers of materials of interest. The various houses they expect to erect are to be built according to the rules and regulations laid down under the National Housing Act. The initial programme proposes to build 320 houses in one municipality near Vancouver and 124 houses in another. In some instances they have planned whole sub-divisions where the building of roads, sanitary sewers and various other items will enter the picture.



From a sketch by Christopher Read, A.R.I.B.A.

B.E.A. AIRPORT TERMINAL BUILDINGS, RENFREW

Architects: Rowand Anderson, Kinninmonth & Paul.
Consulting Engineers: Blyth & Blyth, Edinburgh.

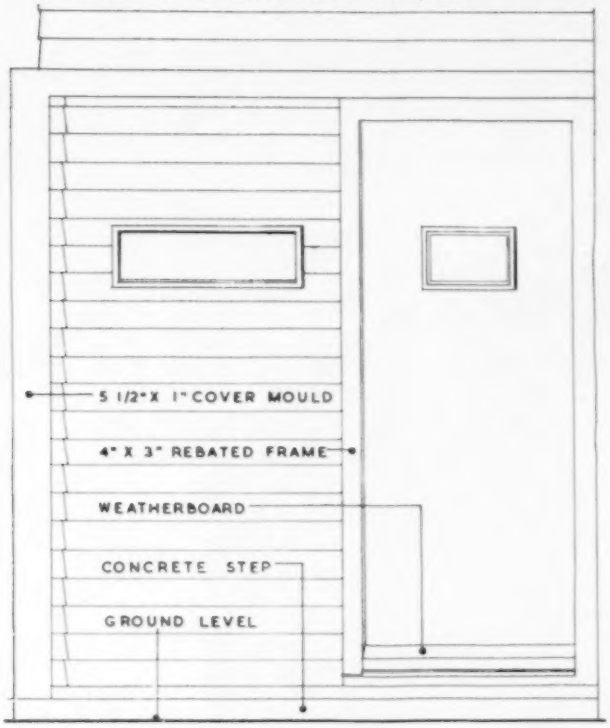
Renfrew is the latest of many airports to look to Bison for the solution of high speed construction at lowest cost. London Airport also has employed Bison prestressed flooring and roofing units — in all over 75,000 yards.

see overleaf

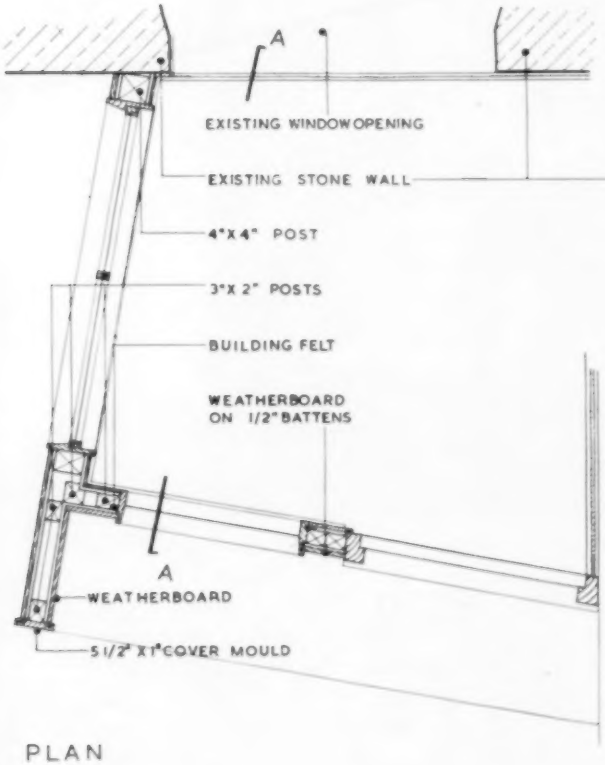
From a sketch by Christopher Read, A.R.I.B.A

B.E.A. AIRPORT TERMINAL BUILDINGS, RENFREW
INTERIOR OF MAIN RECEPTION HALL

The roof is particularly notable; it consists of prestressed Bison units and ordinary reinforced concrete Bison units placed alternately spanning between the main trusses. The prestressed units, although designed for the same load, are visibly shallower than the ordinary reinforced concrete, thus giving an interesting ribbed effect to the exposed underside of the roof. *(For exterior view see previous page.)*

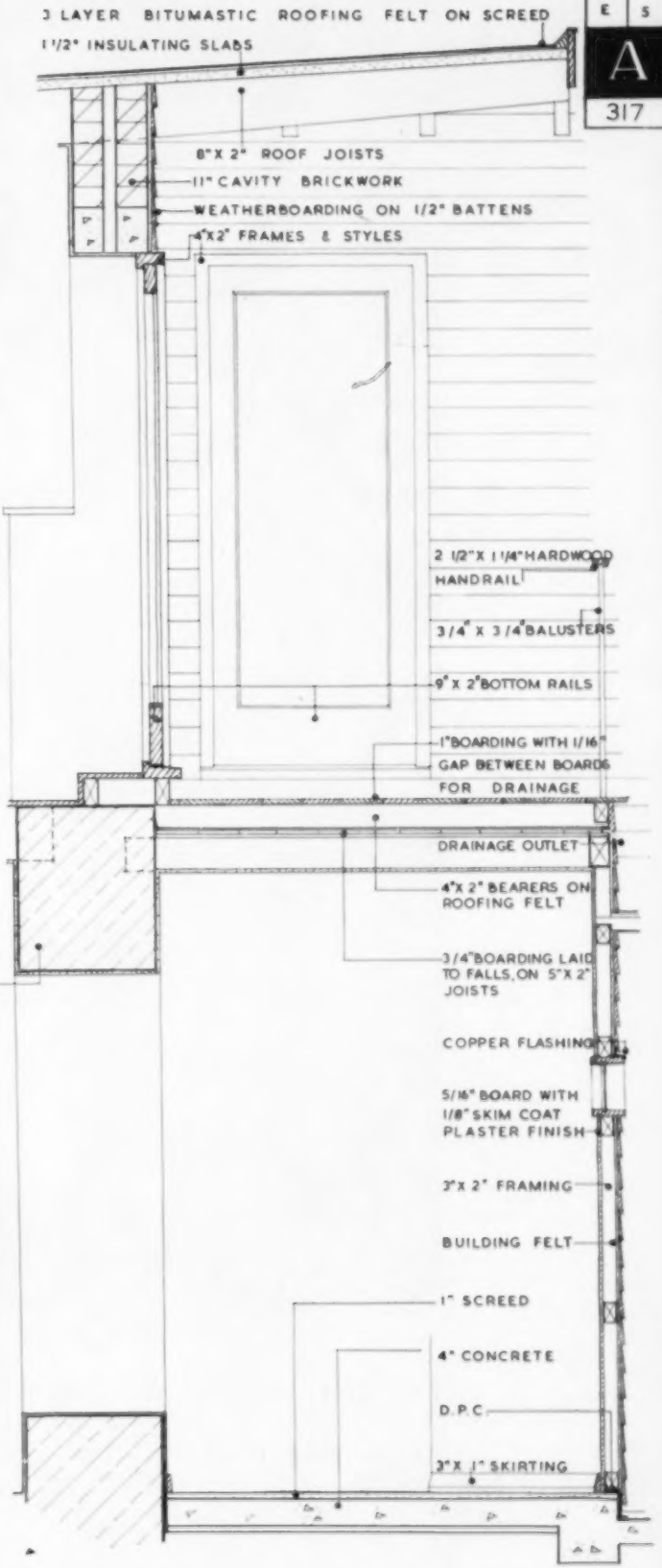


ELEVATION



PLAN

SCALE • 1/2" TO 1' 0"

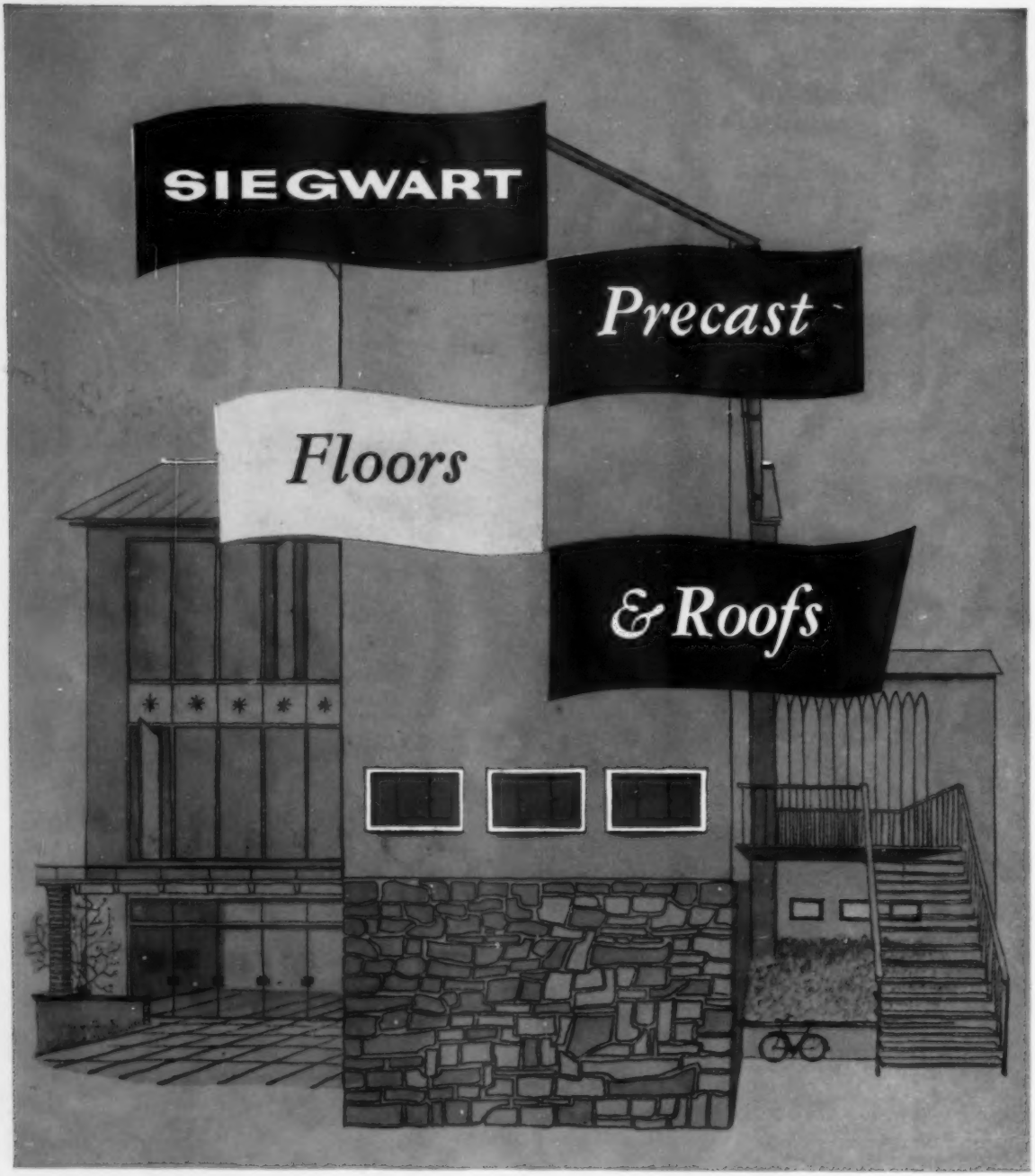


SECTION A – A

PORCH, COTTAGE CONVERSION, NEWTON ABBOT, DEVON • DAWES DINGLE & C. TALBOT LARRINGTON

PORCH: COTTAGE CONVERSION, NEWTON ABBOT

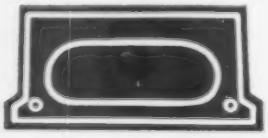
ARCHITECTS: DAWES DINGLE & C. TALBOT LARRINGTON



SIEGWART FLOOR COMPANY LIMITED

GABLE HOUSE, 40 HIGH STREET, RICKMANSWORTH, HERTFORDSHIRE RICKMANSWORTH 2268

AND AT LEICESTER, BIRMINGHAM, MANCHESTER AND GLASGOW



CONTRACT • NEWS •

Notes below give basic data of contracts open under locality and authority which are in bold type. References indicate: (a) type of work, (b) address for application. Where no town is stated in the address it is the same as the locality given in the heading, (c) deposit, (d) last date for application, (e) last date and time for submission of tenders. Full details of contracts marked ★ are given in the advertisement section.

OPEN

BUILDING

BASINGSTOKE B.C. (a) 8 bungalows, Winchester Road. (b) Borough Architect, Municipal Buildings. (c) 2gns. (e) Feb. 22.

• • •

BEDFORDSHIRE C.C. (a) (1) Alterations to provide further lavatory accommodation at Kempston Up End School; (2) new sanitary accommodation, etc., at Marston Shelton Primary School; (3) a portable timber "Medway" classroom at Silsoe West End School; (4) erection of a block of 3 garages at Kempston Manor Civil Defence Headquarters. (b) County Architect, Shire Hall, Bedford. (d) Feb. 8.

• • •

BROMLEY E.C. (a) Additions to the Grammar School for Girls, Nightingale Lane. (b) Borough Engineeer, Municipal Offices. (c) 2gns. (d) Feb. 11.

• • •

CHAPEL-EN-LE-FRITH R.C. (a) (1) 28 houses, Hayfield, Swallowhouse Lane. (2) 8 houses, Buxworth, Brierley Park. (b) Engineer and Surveyor, Council Offices, Hayfield Road. (c) 3gns. (e) Feb. 26.

• • •

CHARD R.C. (a) 7 houses on a site at Misterton, close to Crewkerne Station. (b) Antony Lamb, 2, Prospect Place, Ottery St. Mary, Devon. (c) 3gns. (e) Feb. 21.

• • •

CHRISTCHURCH B.C. (a) 20 aged persons' dwellings and a communal block. (b) A. E. O. Geens, 15, Westover Road, Bournemouth. (c) 2gns payable to Council. (e) Feb. 22.

• • •

CRAWLEY DEVELOPMENT CORPORATION. (a) Extension of a factory. (b) Chief Architect, Broadfield, Crawley, Sussex. (d) Feb. 14.

• • •

CUMBERLAND C.C. (a) Erection of nurses' houses, with waiting room, surgery and garage at (1) Dalston; (2) Crosby-on-Eden; (3) Threlkeld; (4) Whitehaven. (b) County Architect, 15, Portland Square, Carlisle. (e) Feb. 18.

• • •

DOVER B.C. (a) Erection of 30 flats, 4 maisonettes, public house, showrooms and shops, with garages and ancillary buildings and site works, at Stembrook, Market Square. (b) Borough Engineer, Brook House, Maison Dieu Road. (c) 2gns. (e) Feb. 21.

• • •

EAST GRINSTEAD U.C. (a) 2-storey block of flatlets, Charlswoods Row. (b) Council's Surveyor, East Court. (c) 3gns cheque. (e) Feb. 19.

• • •

GRANTHAM B.C. (a) 46 houses, Site 6, Belton Lane. (b) Borough Engineer, Guildhall. (c) 2gns.

• • •

HASTINGS B.C. (a) Extensions to Hastings Secondary School for Girls, Red Lake. (b) Borough Engineer, 37, Wellington Square. (c) 2gns. (e) Mar. 7.

HOLLAND C.C. (a) Erection of a block of 3 classrooms and additions and alterations to form boarding accommodation at Gosberton E.S.N. School, and erection of additional classrooms at Kitwood Secondary School for Girls. (b) County Architect, County Hall, Boston, Lincs. (d) Feb. 7.

• • •

HOVE B.C. (a) 23 aged persons' flats and a public convenience, Sackville Road. (b) Borough Surveyor, Town Hall. (c) 3gns. (d) Feb. 7. (e) Mar. 14.

• • •

HOWDEN R.C. (a) 20 houses, Derwent Estate. (b) G. L. Thompson, Clifton Chambers, Park Street, Selby. (c) 2gns. (e) Feb. 18.

• • •

HUNSTANTON U.C. (a) 2-storey brick building to form public conveniences, North Promenade. (b) J. F. R. Pullan, 42, Chapel Street, King's Lynn. (c) 2gns. (e) Mar. 1.

• • •

HUNTINGDON C.C. (a) Erection of an instalment of the secondary school proposed at St. Peter's Hill, Huntingdon. (b) County Architect, County Buildings, Huntingdon. (c) 2gns. (e) Mar. 4.

• • •

ISLE OF WIGHT C.C. (a) Secondary school, Ventnor. (b) County Architect, County Hall, Newport. (c) 3gns payable to Council. (d) Feb. 21. (e) Apr. 7.

• • •

KEYNSHAM U.C. (a) 28 houses, Park West Estate. (b) Engineer and Surveyor, Council Offices, Keynsham, Bristol. (c) 2gns cheque payable to Council. (e) Feb. 14.

• • •

LEEDS REGIONAL HOSPITAL BOARD. (a) Extensions to the operating theatre and alterations to Block D at Seacroft Hospital, York Road, Leeds. (b) Board's Architect, Park Parade, Harrogate. (c) 2gns. (d) Feb. 8. (e) Feb. 28.

• • •

LINDSEY C.C. (a) Infants' school, Pelham Road, Immingham. (b) County Architect, County Offices, Lincoln. (e) Mar. 8.

• • •

LINDSEY C.C. (a) Special day school for sub-normal children, Bushfield Road, Scunthorpe. (b) County Architect, County Offices, Lincoln. (e) Mar. 8.

• • •

LIVERPOOL C.C. (a) Erection of (1) the Beechwood day special school, Aigburth; (2) secondary school for girls, Princes Park; (3) primary school, Out Lane, Woolton. (b) City Architect, Blackburn Chambers, Dale Street, Kingsway, 2. (c) 2gns to City Treasurer. (e) Feb. 12.

• • •

LONDON—HAMPSTEAD B.C. (a) 43 flats and maisonettes, in 4-, 5- and 6-storey blocks, Springfield Lane, N.W.6. (b) Town Clerk, Town Hall, Haverstock Hill, N.W.3; with statement of work carried out. (d) Feb. 7.

• • •

LONDON—HAMPSTEAD B.C. (a) 134 flats in 9-, 7- and 6-storey blocks, Harben Road, N.W.6. (b) Town Clerk, Town Hall, Haverstock Hill, N.W.3; with statement of work carried out. (d) Feb. 28.

• • •

MALVERN U.C. (a) Erection of (1) a convenience and store at Great Malvern Cemetery; (2) convenience at Malvern Wells Cemetery; (3) 4 lock-up garages at Mendip Close; (4) 10 lock-up garages at Michael Crescent. (b) Surveyor and Water Engineer, The Council House. (c) 1gn each contract. (e) Feb. 17.

MANCHESTER C.C. (a) Erection of the Irwell College for Further Education, off Hardman Street and Water Street, Manchester. (b) City Architect, P.O. Box 488, Town Hall. (e) Feb. 16.

• • •

MARCH U.C. (a) 20 houses, Badgeney Road. (b) Architect and Surveyor, Town Hall. (c) 2gns. (e) Feb. 19.

• • •

MELKSHAM U.C. (a) 45 houses, first phase of Lambourne Farm Estate. (b) Engineer and Surveyor, Town Hall. (c) 3gns. (e) Feb. 21.

• • •

MEXBOROUGH U.C. (a) 44 houses, 56 flats and 6 bungalows, Highwoods Estate. (b) Architect and Surveyor, Council Offices, Adwick Road. (c) 3gns. (e) Mar. 2.

• • •

N. IRELAND—ARMAGH U.C. (a) 8 houses, Railway Street, Armagh, with services. (b) Messrs. Bell and Malcolmson, 27, Ocean Buildings, Donegall Square East, Belfast. (c) 5gns. (e) Feb. 28.

• • •

NOTTINGHAM C.C. (a) 24 2-storey aged persons' flats, Clifton Estate. (b) City Housing Architect, The Guildhall. (c) 2gns payable to Corporation. (d) Feb. 7. (e) Mar. 10.

• • •

PORTSMOUTH C.C. (a) 3 hutted classrooms on the modern school site at Paulsgrove. (b) City Architect, 1, Western Parade. (c) £1. (d) Feb. 9.

• • •

RAMSBOTTOM U.C. (a) 44 houses and 24 maisonnettes, Tagg Wood Estate. (b) Engineer and Surveyor, Council Offices. (e) Feb. 23.

• • •

ROCHDALE B.C. (a) Alterations and improvements to sanitary accommodation at Norden Secondary Junior and Infants' School. (b) Borough Surveyor, Town Hall. (e) Feb. 14.

• • •

RUGBY B.C. (a) 3-storey block of shops and maisonnettes, Bilton Road/Buchanan Road. (b) Borough Surveyor. (c) 2gns. (e) Mar. 1.

• • •

SCOTLAND—EDINBURGH C.C. (a) Alterations and formation of sanitary block at "Foxcovert," Clermiston Road. (b) City Architect, City Chambers. (e) Feb. 18.

• • •

SCOTLAND—GREENOCK. (a) 148 houses, Branchton site, Greenock; all or separate trades. (b) Scottish Special Housing Association, Ltd., 15-21, Palmerston Place, Edinburgh 12.

• • •

SHEFFIELD C.C. (a) Newfield secondary school for boys off Lees Hall Road, Norton. (b) City Architect, Town Hall, 1. (c) £2. (e) Feb. 18.

• • •

SOUTHAMPTON B.C. (a) Erection of a junior and infants' school, Thornhill. (b) Borough Architect, Civic Centre. (c) £1. (d) Feb. 8. (e) Mar. 7.

• • •

STAFFORDSHIRE C.C. (a) Building alterations at The Remand Home, Old Penkridge Road, Cannock. (b) Council's Clerk, County Buildings, Stafford. (e) Feb. 14.

• • •

WALSALL B.C. (a) Erection and completion of a dormitory and separate lavatory accommodation at Beacon School, Lichfield. (b) Borough Engineer, Council House. (c) 2gns. (e) Feb. 15.

WARRINGTON B.C. (a) Erection and completion of the boys' and girls' secondary schools at Orford. (b) Borough Surveyor, Town Hall. (c) 5gns. (e) Mar. 7.

• • •

WILTSHIRE C.C. (a) Erection of further classroom and caretaker's house at Headlands Grammar School, Swindon. (b) Council's Clerk, County Hall, Trowbridge. (c) 2gns. cheque payable to Council. (d) Feb. 11. (e) Mar. 9.

• • •

WILTSHIRE C.C. (a) Erection of further classrooms at Wilton Secondary School. (b) Council's Clerk, County Hall, Trowbridge. (c) 2gns. (d) Feb. 7. (e) Mar. 4.

• • •

YORK C.C. (a) Erection of (1) block of garages at Tudor Road and Chaloner's Road; (2) 6 houses at Tennent Road. (b) City Architect, 8, St. Leonard's Place. (c) £1. (e) Feb. 14.

PLACED

Notes on contracts placed state locality and authority in bold type with (1) type of work, (2) site, (3) name of contractor and address, (4) amount of tender or estimate. † denotes that work may not start pending final acceptance, or obtaining of licence, or modification of tenders, etc.

LONDON COUNTY COUNCIL. Further housing contracts: (1) Blocks of flats. (2) Roehampton Lane, Putney. (3) Tersons, Ltd., Dollis Park, London, N.3. (4) £524,851. (1) Blocks of flats. (2) Quadrant Estate, Islington. (3) W. J. Simms, Sons and Cooke, Ltd., 78, Mount Street, London, W.1. (4) £161,579. (1) School. (2) Pelham, Wandsworth. (3) Gee, Walker and Slater, Ltd., 100, Park Lane, London, W.1. (4) £196,476.

• • •

BIRMINGHAM CORPORATION. (1) Superstructure of College of Technology, Art and Commerce. (2) Gosta Green. (3) William Moss and Sons, Ltd., Queens Road, Loughborough, Leics. (4) £442,350. (1) Grammar school. (2) Tile Cross. (3) W. J. Simms, Sons and Cooke, Ltd., Haydn Road, Sherwood, Nottingham. (4) £248,212. (1) Junior, etc., school. (2) Hilary Grove. (3) E. Crowder, Ltd., South Road, Birmingham. (4) £152,948. (1) Extension of technical school. (2) Bordesley Green. (3) J. F. Wootton, Ltd., Pinfold, Bloxwich, Walsall. (4) £94,858.

• • •

LONDON, W.C. (1) Residential hall for students. (2) Mecklenburgh Square, W.C.1. (3) W. Lawrence and Son, Ltd., Sun Street, Finsbury, E.C.2. (4) £250,000 cost.

• • •

BRISTOL. (1) Block of offices. (2) Baldwin Street. (3) Hayward and Wooster, Ltd., 25, Orchard Street, Bristol. (4) £151,500 cost.

• • •

SWANSEA E.C. Multilateral school for girls. (2) Mynyddach. (3) Gee, Walker and Slater, Ltd., Coychurch Road, Bridgend. (4) £244,481.

• • •

CO. DURHAM E.C. (1) Technical College. (2) Bishop Auckland. (3) Gordon Durham and Co., of East Boldon. (4) £93,440.

• • •

NATIONAL COAL BOARD. (1) Pithead Baths. (2) Dudley Colliery, Northumberland. (3) Middlemiss Bros., Stepney Bank, Newcastle-on-Tyne. (4) £50,000.

OFFICIAL ANNOUNCEMENTS

APPOINTMENTS • CONTRACTS • TENDERS

Rate 1/6 per line, minimum 3/- *Close for press 1st post Monday for following Thursday Issue*

APPOINTMENTS

The engagement of persons answering these advertisements must be made through the local office of the Ministry of Labour and National Service, etc., if the applicant is a man aged 18-64 or a woman aged 18-59 inclusive, unless he or she or the employer is excepted from the provisions of The Notification of Vacancies Order, 1952.

OFFICE OF THE RECEIVER FOR THE METROPOLITAN POLICE DISTRICT.

APPLICATIONS are invited for unestablished appointments as LEADING ARCHITECTURAL ASSISTANTS in the Architect and Surveyor's Department. The work is concerned with the design and construction of police dwellings and buildings and candidates will be required to work in the Westminster area.

Rates of pay:*—
Men: £665 × £20—£755 × £25—£780.
Women: £580 × £20—£640 × £25—£665.

* The scales quoted are subject to an increase of approximately 3 per cent while a 45½-hour week is being worked and also to the addition of a Pay Supplement of £25 or £30 per annum according to the point reached on the scale.

Conditioned hours, 44 per week.

Annual leave, 24 days.

Application forms from the Chief Architect, Architect and Surveyor's Department, New Scotland Yard, London, S.W.1, marking the envelope "Architectural Assistants." [0632

EAST BARNET URBAN DISTRICT COUNCIL.

ENGINEER & SURVEYOR'S DEPARTMENT.

APPLICATIONS are invited for the following permanent appointments:—

(I) ASSISTANT ENGINEER. A.P.T. Grade III (£600—£25—£725 per annum, plus London Weighting).

(II) ASSISTANT ARCHITECT. A.P.T. Grade III (£600—£25—£725 per annum, plus London Weighting).

The Council will be unable to provide housing accommodation.

Forms of Application and Conditions of Appointment may be obtained from the Engineer & Surveyor, Town Hall, Station Road, New Barnet, Hertfordshire. Completed Application Forms must be returned by not later than Saturday, 19th February, 1955. [8723

COUNTY BOROUGH OF WEST HAM.

BOROUGH ARCHITECT AND PLANNING OFFICER'S DEPARTMENT.

APPLICATIONS invited from men of imagination and initiative for the following established posts:—

(a) Two Senior Assistant Architects—New A.P.T. Grade IV—£675 × £30—£825 p.a.

(b) Assistant Architect—New A.P.T. Grade III —£600 × £25 – £725.

(c) Architectural Assistant—£540 × £20—£600. (Salary subject to review.)

(d) Two Senior Assistants, Planning—new A.P.T. Grade V—£750 × £30—£900 p.a.

(e) Senior Assistant, Planning—New A.P.T. Grade IV—£675 × £30 – £825 p.a. and qualified, as under:—

(a) A.R.I.B.A., capable of controlling large Contracts.

(b) A.R.I.B.A. or Registered Architect and able to supervise Contracts.

(c) R.I.B.A. Intermediate Exam. standard with office experience.

(d) A.M.T.P.I. and other qualification an advantage. Experience in Planning Administration Development Plan work, etc.

(e) A.M.T.P.I. Experience in Planning Administration Development Plan work, etc.

Salaries subject to addition of London Allowance.

Application forms (returnable by 15th February, 1955), from Thomas E. North, O.B.E., F.R.I.B.A., Dist.T.P., Borough Architect and Planning Officer, 70, West Ham Lane, Stratford, E.15. [8702

APPOINTMENTS—contd.

CAIRO UNIVERSITY.

FACULTY OF ENGINEERING.

APPLICATIONS are invited for the post of Professor in "TOWN-PLANNING" at the Faculty of Engineering, Cairo University, Giza, Egypt.

Minimum requirements are:—

(1) Ph.D. degree in Town-Planning from a recognized University, or the highest degree in Town-Planning given by that University, or a high qualification in Town-Planning from a recognized institute, which would be considered by that university as equivalent in standard to the above degree.

(2) Adequate practical experience in Town-Planning and important contributions to it.

(3) Applicant must have held the post of assistant professor (or equivalent) of Town-Planning in a recognized university for at least five years. Applications may be accepted from applicants not fulfilling this condition if they have had long experience of university teaching of the subject, provided all other conditions are fulfilled.

(4) Lectures shall be delivered in English, and candidates should be well acquainted with this language.

(5) The salary offered is within the range £E 900 to £E 1,500 per annum according to qualifications, plus an expatriation allowance amounting to £E 360, plus an extra war bonus amounting to £E 75.600m/m to be granted after three months' service.

The applicant will be on Contract for two years, renewable to five years, such contract being terminable on three months' notice being given on either side. A transfer allowance will be paid to the successful candidate if resident in Europe or America.

Applications with full details of academic qualifications, publications, research, teaching experience, should be sent to the Dean of the Faculty of Engineering, Cairo University, Giza, Egypt, not later than the 1st of March, 1955. [8729

BOROUGH OF WALTHAMSTOW.

BOROUGH ARCHITECT, ENGINEER AND SURVEYOR'S DEPARTMENT.

SENIOR ASSISTANT ARCHITECTS.

APPLICATIONS are invited for two appointments on the new A.P.T. Grade V (£780-£930, inclusive of London Weighting), commencing salary according to experience. Applicants must be Registered Architects.

Applications, with names of two references, should be received by the undersigned not later than noon on Monday, 21st February, 1955, endorsed "Senior Assistant Architect"

G. A. BLAKELEY,
Town Clerk.

Town Hall, E.17. [8727

NORWICH EDUCATION COMMITTEE.

THE NORWICH CITY COLLEGE AND ART SCHOOL, IPSWICH ROAD, NORWICH.

Principal: Frank Briers, B.Sc., D.Phil. (Oxon).

WANTED, HEAD OF BUILDING DEPARTMENT, for 1st September, 1955. Applicants should possess a University degree or its equivalent, and must have had experience in the building industry. Experience in a similar capacity in a Technical College would be a recommendation. Examinations for which students are prepared are Ordinary and Higher National Certificates in Building, City and Guilds Examinations in Carpentry and Joinery, Plumbing, Brickwork, Plastering.

Salary will be in accordance with Grade III for Heads of Departments under the Burnham Technical Award, 1954.

Application forms, which should be returned to the Principal not later than February 28th, may be obtained by sending a stamped addressed envelope to the Director of Education, City Hall, Norwich. [8726

APPOINTMENTS—contd.

MINISTRY OF WORKS.

ARCHITECTURAL ASSISTANTS required for drawing offices in London, Edinburgh and various provincial offices, including Aldermaston, Berks; Harwell, Berks; Nancekuke, Cornwall; Ranskill, Notts; and Bishopton, Renfrew.

Candidates must have had at least three years' architectural training, some experience in an architect's office, and be of Intermediate R.I.B.A. standard.

London salary £442—£695 per annum. Rates elsewhere slightly less. Starting pay according to age and experience. Prospects of promotion and establishment.

State age, full details of training and experience and office desired, to E. Bedford, Esq., C.V.O., A.R.I.B.A., Chief Architect, Ministry of Works, W.G.10/C.A.10(G), Abell House, John Islip Street, London, S.W.1. [8734

NORFOLK COUNTY COUNCIL.

ASSISTANT Quantity Surveyor required; salary A.P.T. Grade III (£600-£25-£725) per annum; experience of taking off and working up, checking final accounts, essential; N.J.C. Service conditions; post pensionable, medical examination. Applications, stating age, experience, qualifications, training, present appointment and salary, and giving names of three referees, to County Architect, 27, Thorpe Road, Norwich, by 11th February. [8712

COUNTY BOROUGH OF EAST HAM.

ARCHITECTURAL ASSISTANT—GRADE III. £600—£725.

LONDON Weighting is paid in addition. Salary in excess of the minimum may be paid according to qualifications and experience.

Subsistence allowances may be granted over a reasonable period to persons appointed if unable to obtain suitable housing accommodation, necessitating the maintenance of two homes.

Further details and application forms returnable by February 18, 1955, from the Town Clerk, Town Hall, East Ham, E.6. [8722

TENDERS

EDUCATION COMMITTEE FOR THE COUNTY BOROUGH OF BRIGHTON.

TENDERS are invited for the complete interior decoration and minor alterations at Whitehawk Sec. Mod. School, Brighton.

Specifications and form of tender may be obtained from the Borough Engineer & Surveyor, 26-30, Kings Rd., Brighton, on or after Monday, January 24, on receipt of a returnable deposit of £1 1s.

Tenders are to be delivered to the Borough Engineer & Surveyor's office in plain sealed envelopes not later than 12 noon on Tuesday, February 15, 1955.

W. O. DODD,
Town Clerk.
[8712

EDUCATION COMMITTEE FOR THE COUNTY BOROUGH OF BRIGHTON.

TENDERS are invited for new oil-fired heating installation at Whitehawk Secondary Modern School, Brighton.

Specification and form of tender may be obtained from the Borough Engineer & Surveyor, 26-30, Kings Rd., Brighton, on or after Monday, January 24, 1955, on receipt of a returnable deposit of £1 1s.

Tenders are to be delivered to the Borough Engineer & Surveyor's office in plain sealed envelopes not later than 12 noon on Tuesday, February 15, 1955.

W. O. DODD,
Town Clerk.
[8713

MISCELLANEOUS SECTION

RATE : 1/6d. per line, minimum 3/-, average line 6 words. Each paragraph charged separately.
BOX NOS. add 2 words plus 1/- for registration and forwarding replies which should be addressed c/o, "The Architect & Building News," Dorset House, Stamford Street, London, S.E.1.
PRESS DAY Monday. Remittances payable to Iliffe & Sons Ltd., Dorset House, Stamford Street, London, S.E.1.
No responsibility accepted for errors.

ARCHITECTURAL APPOINTMENTS VACANT

The engagement of persons answering these advertisements must be made through the local office of the Ministry of Labour and National Service, etc., if the applicant is a man aged 18-64 or a woman aged 18-59 inclusive, unless he or she or the employer is excepted from the provisions of The Notification of Vacancies Order, 1952.

ASSISTANT, Inter standard, immediately.—Musman & Cousens, 12, Upper Berkeley St., W.1. [8693

EXPERIENCED assistants required by West End Architects for work on important building. Good prospects. Five-day week.—Write brief particulars and salary required to Box 1555, c/o A. & B.N. [8720

YOUNG qualified Architect interested in light steelwork required by company engaged in steel construction. Full details of age, experience, etc., to Box 1187, c/o A. & B. N. [8691

ASSISTANT (male) required in busy S.E. London private practice. Contemporary work of varied type. Salary £7-£9, according to experience and qualifications.—'Phone: Foots Cray 3166. [8728

LAVENDER, TWENTYMAN & PERCY require experienced Architectural Assistants for responsible work on buildings of contemporary character and high quality.—Apply 2, Waterloo Road, Wolverhampton. [8697

ARCHITECTS: Senior assistants required immediately, experienced in commercial/industrial or hospital work. Excellent prospects. Superannuation scheme.—S. N. Cooke and Partners, 34, Harborne Road, Birmingham, 15. [8698

ARCHITECTURAL Assistant required in busy West End office affording good experience and opportunities for initiative. Male or Female considered. Salary £8 to £12 a week according to ability.—Box 1556, c/o A. & B.N. [8715

LONDON architects and surveyors require keen able man to take charge of architectural department; prospects of partnership for right man. —Reply, stating age, qualifications, experience and salary required, to Box 1391, c/o A. & B.N. [8724

J. M. AUSTIN-SMITH & PARTNER require school trained Architectural Assistant with minimum three to four years' experience to work on commercial and industrial projects.—Write, giving full details of training and experience, and state salary required, to 29, Sackville St., London, W.1. [8725

SENIOR and Junior Assistants required in busy Architects Office on country-wide work of all types. Applicants for Senior posts should be Associates of the R.I.B.A. or qualified. Applicants for Junior posts should be at or near intermediate standard.—Apply J. G. L. Poulson, L.R.I.B.A., 29, Ropergate, Pontefract. [8714

ASSISTANT Architect of some years good office experience and accustomed to site control and responsibility required for Manchester office; R.I.B.A. qualification desirable; interesting post with wide range of work for man of initiative and capacity.—Please give details of education, experience and salary required to Harry S. Fairhurst & Son, Chancery Chambers, 55, Brown St., Manchester, 2. [8708

ARCHITECTURAL Junior Assistants required in architect's office of the Estate Department, W. H. Smith & Son, Ltd., with ability to work up ¼in and ½in scale drawings for new premises, alterations, etc.; knowledge of shop fitting an advantage; salary according to age and experience; five-day week; superannuation scheme; staff canteen facilities, etc.—Apply Personnel Manager, W. H. Smith & Son, Ltd., Strand House, Portugal St., W.C.2. [8721

ARCHITECTURAL Assistants required in the Architects Department of Reckitt & Colman, Ltd., Norwich. Large interesting programme, work guaranteed for at least three years if satisfactory. Must be about Intermediate Standard R.I.B.A., neat and expeditious draughtsmen, able to survey and level and prepare working drawings and details under supervision.—Apply, stating age, qualifications, experience and salary required, to Joint Secretary, Carrow Works, Norwich. [8716

ARCHITECTURAL APPOINTMENTS VACANT—contd.

TRAINEE representatives of good appearance and speech, required by nationally known precast concrete manufacturers in the Guildford, Cheltenham, Northwich and Reading areas. Age 24-32 years. Previous experience as Architectural Assistant or similar an advantage. Must have matriculated or passed School Certificate. Current driving licence essential. These posts have good prospects for young men with drive and energy.—Apply in writing, giving details of previous employment, to the Sales Manager, Surrey Concrete, Ltd., Peasmarsh, Nr. Guildford, Surrey. [8730

SITUATIONS VACANT

The engagement of persons answering these advertisements must be made through the local office of the Ministry of Labour and National Service, etc., if the applicant is a man aged 18-64 or a woman aged 18-59 inclusive, unless he or she or the employer is excepted from the provisions of The Notification of Vacancies Order, 1952.

ASSISTANT required, Final Standard.—Write, stating age, salary required and experience, to G. H. N. Inman & H. A. J. Darlow, F/A.R.I.B.A., The Charterhouse, E.C.1. [8717

GOLLINS, MELVIN, WARD & PARNTERS, 15, Manchester Square, W.1, require competent enthusiastic staff for interesting contemporary schemes.—Write or telephone Welbeck 991. [8700

ASSISTANT required in busy practice in West End, in early '20s, about Intermediate R.I.B.A. standard; excellent opportunities for gaining all-round experience.—Box 0672, c/o A. & B.N. [8636

YOUNG man, 20-25 years, required as Draughtsman for Building and Shopfitting. Experience in model making an advantage.—Apply by letter in first instance, stating experience and salary required, to Horne Brothers, Ltd., Estate Department, 50-7, Newman St., London, W.1. [8723

CLERK of Works required for large secondary school project in N.W. Lancashire, commencing about the end of March.
Applications invited from qualified and experienced men only, stating age and salary required, references and details of training and experience.—Box 1452, c/o A. & B.N. [8731

FOR SALE

WE specialise in white and coloured urinal sets. Let us quote you.—Thos. Lord, Ltd., Mitella Street, Burnley. [0149

JOINTLESS composition flooring in attractive colour range—quotations free.—Full particulars from the Liotex Asbestos Flooring Co., Ltd., 3, Corbetts Passage, London, S.E.16 (Dept. A), Bermondsey 4341-2-3. [8622

ALL hardwood mouldings, plain and embossed, embossed ornaments and dowels; send for catalogue and to-day's lowest trade prices.—Dareve's Moulding Mills, Ltd., 60, Pownall Road, Dalston, E.8. Clissold 1543/4. [0142

TWO 3½/5-ton Ransomes and Rapier Supermobile Petrol Electric Mobile Cranes, mounted on solid rubber-tyred wheels, for sale. Fitted road lights. Excellent condition.—Specification and details from F. J. Edwards, Ltd., 359, Euston Rd., London. Euston 4681. [8718

WANTED

WANTED to purchase, established architectural practice within 50 miles Bath or London.—Box 1558, c/o A. & B.N. [8719

DRIVES AND ROADS

DRIVES, Forecourts, Roads, etc., resurfacing or new construction by Specialists. Tarmacadam, Tar-spraying Chippings, Shingle, etc. Estimates free.—Stanley Lucas (Slough), Ltd., Alexandra Rd., Slough 21279. [0136

BUSINESS & PROPERTY

TO let, two ground-floor offices with separate toilet; main road, near tube and buses; all newly decorated; rent £3 per week inclusive.—Bell & Co., 46, Clapham Rd., S.W.9. Reliance 2273. [8709

INSURANCE

ARCHITECTS' Indemnity Insurance effected.
Please write for Proposal Form to
E. J. SAXBY, Incorporated Insurance Broker, 37a, Carfax, Horsham, Sussex. Tel. 990. [8549

MISCELLANEOUS

TO let, two first floor office rooms situated Mostyn St., Llandudno.—Apply Box 1609, c/o A. & B.N. [8724

BOOKS, ETC.

"PLANNING: The Architect's Handbook," 7th Edition. By S. Rowland Pierce, V.P.R.I.B.A., Dist.T.P., Rome Scholar in Architecture, and Patrick Cutbush, A.R.I.B.A., A.A.Dip., A.I.L.A., R.I.B.A., Alfred Bossom Gold Medalist. An indispensable reference for all who plan and design buildings, providing essentials of plan types and the more important details. 32 sections, all fully illustrated, cover concisely almost every type of building the architect is likely to encounter. 30/- net from all booksellers. By post 31/6 from The Publishing Dept., Dorset House, Stamford St., London, S.E.1.

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"ARCHITECTURE as a Career: A Practical Handbook for Students." By Maurice E. Taylor, M.T.P.I., A.R.I.B.A., F.I.L.A., F.R.I.A.S., F.S.A.Scot., R.I.B.A.Dist.T.P., A.A.Dip. of Planning. Discusses the various methods of approach to the architectural profession, gives information on the various R.I.B.A. examinations, scholarships and prizes, and offers the intending architect much sound advice on every aspect of planning his career. 10/6 net from all booksellers. By post 10/11 from The Publishing Dept., Dorset House, Stamford St., London, S.E.1.

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Printed in Great Britain for the publishers, Iliffe and Sons Ltd., Dorset House, Stamford Street, London, S.E.1, by Cornwall Press Ltd., Paris Garden, Stamford Street, London, S.E.1.

A CASE HISTORY OF B.S.F.

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These houses, part of the Southcourt Estate, Aylesbury, are representative of the 96 modern dwellings on this large site.

Designed by Raymond C. White, F.R.I.B.A., for the Aylesbury Borough Council, the electrical installation was carried out with Henley Cables by Messrs. G. F. Gray & Sons Ltd., Rushden and Bletchley.

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